

Clement S. Roberts (SBN 209203)
croberts@orrick.com
 ORRICK HERRINGTON & SUTCLIFFE LLP
 405 Howard Street
 San Francisco, CA 94105
 Tel: (415) 773-5700 -- Fax: (415) 773-5759

Alyssa Caridis (SBN 260103)
acaridis@orrick.com
 ORRICK HERRINGTON & SUTCLIFFE LLP
 777 South Figueroa Street, Suite 3200
 Los Angeles, CA 90017
 Tel: (213) 629-2020 -- Fax: (213) 612-2499

George I. Lee
lee@ls3ip.com
 Sean M. Sullivan
sullivan@ls3ip.com
 Rory P. Shea
shea@ls3ip.com
 J. Dan Smith
smith@ls3ip.com
 Michael P. Boyea
boyea@ls3ip.com
 Cole B. Richter
richter@ls3ip.com

LEE SULLIVAN SHEA & SMITH LLP
 656 W Randolph St, Floor 5W
 Chicago, IL 60661
 Tel: (312) 754-0002 -- Fax: (312) 754-0003

Attorneys for Sonos, Inc.

**UNITED STATES DISTRICT COURT
 FOR THE NORTHERN DISTRICT OF CALIFORNIA**

GOOGLE LLC,

Plaintiff,

v.

SONOS, INC.,

Defendant.

Case No. 3:20-cv-06754-WHA

**DECLARATION OF COLE B.
 RICHTER IN SUPPORT OF SONOS'S
 OPPOSITION TO GOOGLE'S
 MOTION FOR LEAVE TO FILE A
 SECOND AMENDED COMPLAINT**

Date: December 23, 2021
 Time: 8:00 a.m.
 Location: Courtroom 12, 9th Floor
 Judge: Hon. William Alsup
 Complaint Filed: September 28, 2020

1 1. I am an attorney at the law firm of Lee Sullivan Shea & Smith LLP, counsel of
2 record for Defendant Sonos, Inc. (“Sonos”) in the above-captioned matter. I am a member in
3 good standing of the Bar of the State of Illinois. I am admitted to practice *pro hac vice* in the
4 above-captioned matter. I make this declaration based on my personal knowledge, unless
5 otherwise noted. If called, I can and will testify competently to the matters set forth herein. I
6 submit this declaration in support of Sonos’s Opposition to Google LLC’s (“Google’s”) Motion
7 For Leave to File a Second Amended Complaint.

8 2. Attached hereto as **Exhibit A** is an excerpt of a true and correct copy of U.S.
9 Patent No. 9,967,615.

10 3. Attached hereto as **Exhibit B** is an excerpt of a true and correct copy of U.S.
11 Patent No. 10,779,033.

12 4. Attached hereto as **Exhibit C** is an excerpt of a true and correct copy of an email
13 from Mark Triplett of Sonos to John LaBarre and Matthew Gubiotti of Google, attaching a
14 document titled “Sonos IP License Model Presented 2018.07.12,” sent on July 12, 2018.

15 5. Attached hereto as **Exhibit D** is an excerpt of a true and correct copy of U.S.
16 Patent No. 9,363,255.

17 6. Attached hereto as **Exhibit E** is a true and correct copy of a letter from Mark
18 Triplett at Sonos to Matthew Gubiotti, Bradley Riel, and Tim Kowalski of Google sent on
19 February 22, 2019. Portions of the letter containing confidential information not relevant to the
20 present opposition have been redacted.

21 7. Attached hereto as **Exhibit F** is a true and correct copy of an email from Mark
22 Triplett of Sonos to John LaBarre and Allen Lo of Google, attaching a document titled “Patent
23 Identification for Google Aug 2016,” sent on September 2, 2016.

24 8. Attached hereto as **Exhibit G** is an excerpt of a true and correct copy of U.S.
25 Patent No. 9,232,277.

26 9. Attached hereto as **Exhibit H** is an excerpt of a true and correct copy of U.S.
27 Patent No. 9,674,587.
28

1 10. Attached hereto as **Exhibit I** is a true and correct copy of an email from Chris
2 Butts of Sonos to John LaBarre of Google, attaching a document titled “Google Deck
3 2016.10.25,” sent on October 26, 2016.

4 11. Attached hereto as **Exhibit J** is an excerpt of a true and correct copy of the
5 transcript of a July 23, 2021 hearing held in the *Sonos, Inc. v. Google LLC*, No. 20-cv-881 (W.D.
6 Tex.) matter.

7
8 I declare under penalty of perjury that the foregoing is true and correct to the best of my
9 knowledge. Executed this 30th day of November, 2021 in Chicago, Illinois.

10
11 

12 COLE B. RICHTER
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

Exhibit A



US009967615B2

(12) **United States Patent**
Coburn, IV et al.

(10) **Patent No.:** **US 9,967,615 B2**
(45) **Date of Patent:** ***May 8, 2018**

(54) **NETWORKED MUSIC PLAYBACK**

(56) **References Cited**

(71) Applicant: **Sonos, Inc.**, Santa Barbara, CA (US)

U.S. PATENT DOCUMENTS

(72) Inventors: **Arthur Coburn, IV**, Cambridge, MA (US); **Joni Hoadley**, Santa Barbara, CA (US)

5,406,634 A 4/1995 Anderson et al.
5,440,644 A 8/1995 Farinelli et al.
(Continued)

(73) Assignee: **Sonos, Inc.**, Santa Barbara, CA (US)

FOREIGN PATENT DOCUMENTS

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

CA 2832542 A1 10/2012
CN 101212823 A 7/2008
(Continued)

This patent is subject to a terminal disclaimer.

OTHER PUBLICATIONS

(21) Appl. No.: **14/628,952**

International Bureau, "International Preliminary Report on Patentability", issued in connection with PCT application No. PCT/US2012/071212, dated Jul. 10, 2014, pp. 8.

(22) Filed: **Feb. 23, 2015**

(Continued)

(65) **Prior Publication Data**

US 2015/0172756 A1 Jun. 18, 2015

Primary Examiner — Oschat Montoya

(74) *Attorney, Agent, or Firm* — McDonnell Boehnen Hulbert & Berghoff LLP

Related U.S. Application Data

(63) Continuation of application No. 13/341,237, filed on Dec. 30, 2011, now Pat. No. 9,654,821.

(51) **Int. Cl.**
H04N 7/18 (2006.01)
H04N 21/436 (2011.01)
(Continued)

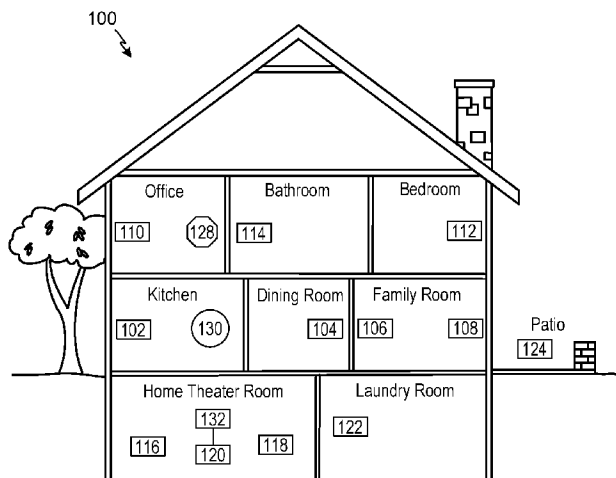
(52) **U.S. Cl.**
CPC ... **H04N 21/43615** (2013.01); **H04L 65/4084** (2013.01); **H04N 21/4307** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC H04N 21/43615; H04N 21/6581; H04N 21/439; H04N 21/6125; H04N 21/64322;
(Continued)

(57) **ABSTRACT**

Systems, methods, apparatus, and articles of manufacture to facilitate connection to a multimedia playback network are disclosed. An example method includes detecting a first input including an identification of a playback device; detecting a second input including an identification of an item on a controller, wherein multimedia content associated with the item is retrievable from a content provider; detecting a trigger, wherein the trigger is not the first input or the second input; and sending, in response to detecting the trigger, information regarding the multimedia content from the controller to the playback device, wherein the information includes an identification of the multimedia content for playback by the playback device, and wherein the information causes (a) the playback device to retrieve, independent of the controller, the multimedia content from the content provider and (b) playback of the retrieved multimedia content.

29 Claims, 11 Drawing Sheets



US 9,967,615 B2

1

NETWORKED MUSIC PLAYBACK**CROSS-REFERENCE TO RELATED APPLICATIONS**

The present application claims the benefit of priority to U.S. Non-Provisional application Ser. No. 13/341,237, filed on Dec. 30, 2011, entitled "Systems and Methods for Networked Music Playback", which is hereby incorporated by reference in its entirety for all purposes.

FIELD OF THE DISCLOSURE

The disclosure is related to consumer electronics and, more particularly, to providing music for playback via one or more devices on a playback data network.

BACKGROUND

Technological advancements have increased the accessibility of music content, as well as other types of media, such as television content, movies, and interactive content. For example, a user can access audio, video, or both audio and video content over the Internet through an online store, an Internet radio station, an online music service, an online movie service, and the like, in addition to the more traditional avenues of accessing audio and video content. Demand for such audio and video content continues to surge. Given the high demand, technology used to access and play such content has likewise improved.

BRIEF DESCRIPTION OF THE DRAWINGS

Features, aspects, and advantages of the presently disclosed technology are better understood with regard to the following description, appended claims, and accompanying drawings where:

FIG. 1 shows an illustration of an example system in which embodiments of the methods and apparatus disclosed herein can be implemented;

FIG. 2A shows an illustration of an example zone player having a built-in amplifier and speakers;

FIG. 2B shows an illustration of an example zone player having a built-in amplifier and connected to external speakers;

FIG. 2C shows an illustration of an example zone player connected to an A/V receiver and speakers;

FIG. 3 shows an illustration of an example controller;

FIG. 4 shows an internal functional block diagram of an example zone player;

FIG. 5 shows an internal functional block diagram of an example controller;

FIG. 6 shows an example ad-hoc playback network;

FIG. 7 shows a system including a plurality of networks including a cloud-based network and at least one local playback network; and

FIGS. 8-11 show flow diagrams for methods to provide audio content to a local playback system.

In addition, the drawings are for the purpose of illustrating example embodiments, but it is understood that the present disclosure is not limited to the arrangements and instrumentality shown in the drawings.

DETAILED DESCRIPTION**I. Overview**

Wired or wireless networks can be used to connect one or more multimedia playback devices for a home or other

2

location playback network (e.g., a home music system). Certain examples provide automatic configuration of parameters of a playback device to be coupled to a network with reduced or minimum human intervention. For example, a wired and/or wireless ad-hoc network is established to facilitate communications among a group of devices. Music and/or other multimedia content can be shared among devices and/or groups of devices (also referred to herein as zones) associated with a playback network.

Certain embodiments facilitate streaming or otherwise providing music from a music-playing application (e.g., browser-based application, native music player, other multimedia application, and so on) to a multimedia content playback (e.g., Sonos™) system. Certain embodiments provide simple, easy-to-use and secure systems and methods for multimedia content playback across a plurality of systems and locations. Certain embodiments facilitate integration between content partners and a playback system as well as supporting maintenance of such content and system.

Although the following discloses example systems, methods, apparatus, and articles of manufacture including, among other components, firmware and/or software executed on hardware, it should be noted that such systems, methods, apparatus, and/or articles of manufacture are merely illustrative and should not be considered as limiting. For example, it is contemplated that any or all of these firmware, hardware, and/or software components could be embodied exclusively in hardware, exclusively in software, exclusively in firmware, or in any combination of hardware, software, and/or firmware. Accordingly, while the following describes example systems, methods, apparatus, and/or articles of manufacture, the examples provided are not the only way(s) to implement such systems, methods, apparatus, and/or articles of manufacture.

When any of the appended claims are read to cover a purely software and/or firmware implementation, at least one of the elements in at least one example is hereby expressly defined to include a tangible medium such as a memory, DVD, CD, Blu-ray, and so on, storing the software and/or firmware.

Reference herein to "embodiment" means that a particular feature, structure, or characteristic described in connection with the embodiment can be included in at least one example embodiment of the invention. The appearances of this phrase in various places in the specification are not necessarily all referring to the same embodiment, nor are separate or alternative embodiments mutually exclusive of other embodiments. As such, the embodiments described herein, explicitly and implicitly understood by one skilled in the art, can be combined with other embodiments.

Certain embodiments provide a method to provide content to a local playback network. The example method includes identifying multimedia content from a content provider. The example method includes passing information regarding the multimedia content to a local playback system including one or more multimedia playback devices in response to a trigger. The example method includes facilitating play of the multimedia content via a local playback network associated with the local playback system.

Certain embodiments provide a computer readable storage medium including instructions for execution by a processor, the instructions, when executed, cause the processor to implement a method to provide content to a local playback network. The example method includes identifying multimedia content from a content provider. The example method includes passing information regarding the multimedia content to a local playback system including one or

Exhibit B

US010779033B2

(12) **United States Patent**
Coburn, IV et al.

(10) **Patent No.:** **US 10,779,033 B2**

(45) **Date of Patent:** **Sep. 15, 2020**

(54) **SYSTEMS AND METHODS FOR
 NETWORKED MUSIC PLAYBACK**

(56) **References Cited**

U.S. PATENT DOCUMENTS

(71) Applicant: **SONOS, INC.**, Santa Barbara, CA (US)

5,406,634 A 4/1995 Anderson et al.

5,440,644 A 8/1995 Farinelli et al.

(Continued)

(72) Inventors: **Arthur Coburn, IV**, Lexington, MA
 (US); **Joni Rafalski Hoadley**, Santa
 Barbara, CA (US)

FOREIGN PATENT DOCUMENTS

(73) Assignee: **Sonos, Inc.**, Santa Barbara, CA (US)

CA 2832542 A1 10/2012

CA 2947275 A1 10/2012

(Continued)

(*) Notice: Subject to any disclaimer, the term of this
 patent is extended or adjusted under 35
 U.S.C. 154(b) by 0 days.

OTHER PUBLICATIONS

(21) Appl. No.: **16/389,906**

Chinese Patent Office, Second Office Action dated Nov. 13, 2018,
 issued in connection with Chinese Application No. 201480042472.
 1, 7 pages.

(22) Filed: **Apr. 19, 2019**

(Continued)

(65) **Prior Publication Data**

US 2019/0332349 A1 Oct. 31, 2019

Primary Examiner — Jesse A Elbin

Related U.S. Application Data

(63) Continuation of application No. 15/872,500, filed on
 Jan. 16, 2018, now Pat. No. 10,567,831, which is a
 (Continued)

(51) **Int. Cl.**
H04N 21/436 (2011.01)
H04N 21/472 (2011.01)
 (Continued)

(52) **U.S. Cl.**
 CPC **H04N 21/43615** (2013.01); **G06F 3/0481**
 (2013.01); **G06F 3/04842** (2013.01);
 (Continued)

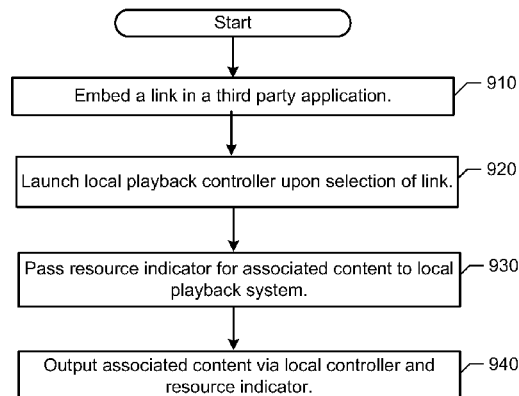
(58) **Field of Classification Search**
 CPC H04R 3/12; H04R 27/00; H04R 2227/003;
 H04R 2227/005; H04R 2420/07;
 (Continued)

(57) **ABSTRACT**

An example computing device in a first mode is configured
 for playback of given audio content. While in the first mode,
 the computing device displays a representation of one or
 more playback devices in a media playback system that are
 available to accept playback responsibility for the given
 audio content and receives user input indicating a selection
 of a given playback device. The computing device transmits
 an instruction for playback responsibility to be transferred to
 the given playback device such that i) an identifier of the
 given audio content and a playback position for the given
 audio content are provided to the given playback device and
 ii) the given playback device becomes configured for play-
 back of the given audio content. The computing device
 transitions from the first mode to a second mode in which the
 computing device is configured to control the given play-
 back device's playback of the given audio content.

16 Claims, 11 Drawing Sheets

900 ↘



US 10,779,033 B2

Page 2

Related U.S. Application Data

continuation of application No. 14/520,578, filed on Oct. 22, 2014, now Pat. No. 9,883,234, which is a continuation of application No. 13/341,237, filed on Dec. 30, 2011, now Pat. No. 9,654,821.

(51) Int. Cl.

H04N 21/485 (2011.01)
H04N 21/81 (2011.01)
H04N 21/658 (2011.01)
G06F 3/0481 (2013.01)
G06F 3/0484 (2013.01)
G06F 3/16 (2006.01)
G11B 19/02 (2006.01)
H04L 29/06 (2006.01)
H04R 3/12 (2006.01)
H04N 21/439 (2011.01)
H04N 21/61 (2011.01)
H04N 21/643 (2011.01)
H04N 21/6587 (2011.01)
H04N 21/43 (2011.01)
H04N 21/433 (2011.01)
H04N 21/858 (2011.01)

(52) U.S. Cl.

CPC *G06F 3/04847* (2013.01); *G06F 3/165* (2013.01); *G11B 19/025* (2013.01); *H04L 29/06027* (2013.01); *H04L 65/4084* (2013.01); *H04N 21/4307* (2013.01); *H04N 21/439* (2013.01); *H04N 21/4333* (2013.01); *H04N 21/47202* (2013.01); *H04N 21/4852* (2013.01); *H04N 21/6125* (2013.01); *H04N 21/64322* (2013.01); *H04N 21/6581* (2013.01); *H04N 21/6587* (2013.01); *H04N 21/8113* (2013.01); *H04N 21/8586* (2013.01); *H04R 3/12* (2013.01); *G06F 3/04817* (2013.01); *H04R 2227/005* (2013.01); *H04R 2420/07* (2013.01)

(58) Field of Classification Search

CPC *G06F 3/048*; *G06F 3/0481*; *G06F 3/04817*; *G06F 3/0484*; *G06F 3/08442*; *G06F 3/04247*; *G06F 3/165*; *H04L 29/06027*; *H04L 65/4084*; *G11B 19/025*
 USPC 700/94; 715/716, 727, 765, 771
 See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

5,642,171	A	6/1997	Baumgartner et al.	6,757,517	B2	6/2004	Chang et al.
5,761,320	A	6/1998	Farinelli et al.	6,778,869	B2	8/2004	Champion
5,856,827	A	1/1999	Sudo	6,826,283	B1	11/2004	Wheeler et al.
5,923,902	A	7/1999	Inagaki	6,832,293	B1	12/2004	Tagawa et al.
6,002,862	A	12/1999	Takaike	6,910,078	B1	6/2005	Raman et al.
6,032,202	A	2/2000	Lea et al.	6,985,694	B1	1/2006	De Bonet et al.
6,119,239	A	9/2000	Fujii	7,017,118	B1	3/2006	Carroll
6,122,749	A	9/2000	Gulick	7,020,048	B2	3/2006	McComas
6,181,316	B1	1/2001	Little et al.	7,113,833	B1	9/2006	Brown et al.
6,255,961	B1	7/2001	Van Ryzin et al.	7,117,451	B2	10/2006	Sielken
6,256,554	B1	7/2001	DiLorenzo	7,130,608	B2	10/2006	Hollstrom et al.
6,404,811	B1	6/2002	Cvetko et al.	7,130,616	B2	10/2006	Janik
6,469,633	B1	10/2002	Wachter et al.	7,143,939	B2	12/2006	Henzerling
6,522,886	B1	2/2003	Youngs et al.	7,178,106	B2	2/2007	Lamkin et al.
6,587,127	B1	7/2003	Leeke et al.	7,187,947	B1	3/2007	White et al.
6,611,537	B1	8/2003	Edens et al.	7,236,773	B2	6/2007	Thomas
6,631,410	B1	10/2003	Kowalski et al.	7,269,338	B2	9/2007	Janevski
6,703,940	B1	3/2004	Allen et al.	7,295,548	B2	11/2007	Blank et al.
6,721,489	B1	4/2004	Benyamin et al.	7,312,785	B2	12/2007	Tsuk et al.
6,728,531	B1	4/2004	Lee et al.	7,313,384	B1	12/2007	Meenan et al.
6,732,155	B2	5/2004	Meek	7,358,960	B2	4/2008	Mak
				7,391,791	B2	6/2008	Balassanian et al.
				7,430,181	B1	9/2008	Hong
				7,483,538	B2	1/2009	McCarty et al.
				7,509,181	B2	3/2009	Champion
				7,571,014	B1	8/2009	Lambourne et al.
				7,583,886	B2	9/2009	Komi et al.
				7,630,501	B2	12/2009	Blank et al.
				7,643,894	B2	1/2010	Braithwaite et al.
				7,647,613	B2	1/2010	Drakoulis et al.
				7,657,910	B1	2/2010	McAulay et al.
				7,689,304	B2	3/2010	Sasaki
				7,716,699	B2	5/2010	Evans et al.
				7,725,533	B2	5/2010	Szeto et al.
				7,725,551	B2	5/2010	Szeto et al.
				7,742,740	B2	6/2010	Goldberg et al.
				7,770,314	B2	8/2010	Dean
				7,792,920	B2	9/2010	Istvan et al.
				7,797,446	B2	9/2010	Heller et al.
				7,797,719	B2	9/2010	Drakoulis et al.
				7,805,682	B1	9/2010	Lambourne et al.
				7,827,259	B2	11/2010	Heller et al.
				7,853,341	B2	12/2010	McCarty et al.
				7,895,633	B2	2/2011	Van Hoff et al.
				7,958,441	B2	6/2011	Heller et al.
				7,987,294	B2	7/2011	Bryce et al.
				8,014,423	B2	9/2011	Thaler et al.
				8,045,952	B2	10/2011	Qureshey et al.
				8,050,652	B2	11/2011	Qureshey et al.
				8,055,364	B2	11/2011	Champion
				8,060,407	B1	11/2011	Delker et al.
				8,072,905	B2	12/2011	Haff et al.
				8,074,253	B1	12/2011	Nathan
				8,099,313	B2	1/2012	Messer et al.
				8,103,009	B2	1/2012	McCarty et al.
				8,111,132	B2	2/2012	Allen et al.
				8,131,390	B2	3/2012	Braithwaite et al.
				8,140,974	B2	3/2012	Hayter et al.
				8,148,622	B2	4/2012	Rothkopf et al.
				8,156,435	B2	4/2012	Wohlert
				8,204,890	B1	6/2012	Gogan et al.
				8,214,740	B2	7/2012	Johnson
				8,234,395	B2	7/2012	Millington et al.
				8,290,603	B1	10/2012	Lambourne et al.
				8,316,154	B2	11/2012	Yoneda et al.
				8,364,296	B2	1/2013	Wilhelm
				8,407,623	B2	3/2013	Kerr et al.
				8,483,853	B1	7/2013	Lambourne et al.
				8,544,046	B2	9/2013	Gran et al.
				8,588,949	B2	11/2013	Lambourne et al.
				8,601,394	B2	12/2013	Sheehan et al.
				8,688,431	B2	4/2014	Lyons et al.
				8,688,991	B1	4/2014	Sunil
				8,750,677	B2	6/2014	Brown et al.
				8,799,395	B2	8/2014	Seidel et al.
				8,818,538	B2	8/2014	Sakata
				8,843,586	B2	9/2014	Pantos et al.
				8,880,648	B1	11/2014	Arora et al.
				8,942,252	B2	1/2015	Balassanian et al.

US 10,779,033 B2

1

**SYSTEMS AND METHODS FOR
NETWORKED MUSIC PLAYBACK****CROSS REFERENCE TO RELATED
APPLICATIONS**

This application is a continuation of U.S. non-provisional patent application Ser. No. 15/872,500, filed on Jan. 16, 2018, entitled "Systems and Methods for Networked Music Playback," which is a continuation of U.S. non-provisional patent application Ser. No. 14/520,578, filed on Oct. 22, 2014, entitled "Systems and Methods for Networked Music Playback," which is a continuation of U.S. non-provisional patent application Ser. No. 13/341,237, filed on Dec. 30, 2011, entitled "Systems and Methods for Networked Music Playback," all of which are incorporated herein by reference in their entirety.

FIELD OF THE DISCLOSURE

The disclosure is related to consumer electronics and, more particularly, to providing music for playback via one or more devices on a playback data network.

BACKGROUND

Technological advancements have increased the accessibility of music content, as well as other types of media, such as television content, movies, and interactive content. For example, a user can access audio, video, or both audio and video content over the Internet through an online store, an Internet radio station, an online music service, an online movie service, and the like, in addition to the more traditional avenues of accessing audio and video content. Demand for such audio and video content continues to surge. Given the high demand, technology used to access and play such content has likewise improved.

BRIEF DESCRIPTION OF THE DRAWINGS

Features, aspects, and advantages of the presently disclosed technology are better understood with regard to the following description, appended claims, and accompanying drawings where:

FIG. 1 shows an illustration of an example system in which embodiments of the methods and apparatus disclosed herein can be implemented;

FIG. 2A shows an illustration of an example zone player having a built-in amplifier and speakers;

FIG. 2B shows an illustration of an example zone player having a built-in amplifier and connected to external speakers;

FIG. 2C shows an illustration of an example zone player connected to an A/V receiver and speakers;

FIG. 3 shows an illustration of an example controller;

FIG. 4 shows an internal functional block diagram of an example zone player;

FIG. 5 shows an internal functional block diagram of an example controller;

FIG. 6 shows an example ad-hoc playback network;

FIG. 7 shows a system including a plurality of networks including a cloud-based network and at least one local playback network; and

FIGS. 8-11 show flow diagrams for methods to provide audio content to a local playback system.

2

In addition, the drawings are for the purpose of illustrating example embodiments, but it is understood that the present disclosure is not limited to the arrangements and instrumentality shown in the drawings.

DETAILED DESCRIPTION**I. Overview**

Wired or wireless networks can be used to connect one or more multimedia playback devices for a home or other location playback network (e.g., a home music system). Certain examples provide automatic configuration of parameters of a playback device to be coupled to a network with reduced or minimum human intervention. For example, a wired and/or wireless ad-hoc network is established to facilitate communications among a group of devices. Music and/or other multimedia content can be shared among devices and/or groups of devices (also referred to herein as zones) associated with a playback network.

Certain embodiments facilitate streaming or otherwise providing music from a music-playing application (e.g., browser-based application, native music player, other multimedia application, and so on) to a multimedia content playback (e.g., Sonos™) system. Certain embodiments provide simple, easy-to-use and secure systems and methods for multimedia content playback across a plurality of systems and locations. Certain embodiments facilitate integration between content partners and a playback system as well as supporting maintenance of such content and system.

Although the following discloses example systems, methods, apparatus, and articles of manufacture including, among other components, firmware and/or software executed on hardware, it should be noted that such systems, methods, apparatus, and/or articles of manufacture are merely illustrative and should not be considered as limiting. For example, it is contemplated that any or all of these firmware, hardware, and/or software components could be embodied exclusively in hardware, exclusively in software, exclusively in firmware, or in any combination of hardware, software, and/or firmware. Accordingly, while the following describes example systems, methods, apparatus, and/or articles of manufacture, the examples provided are not the only way(s) to implement such systems, methods, apparatus, and/or articles of manufacture.

When any of the appended claims are read to cover a purely software and/or firmware implementation, at least one of the elements in at least one example is hereby expressly defined to include a tangible medium such as a memory, DVD, CD, Blu-ray, and so on, storing the software and/or firmware.

Reference herein to "embodiment" means that a particular feature, structure, or characteristic described in connection with the embodiment can be included in at least one example embodiment of the invention. The appearances of this phrase in various places in the specification are not necessarily all referring to the same embodiment, nor are separate or alternative embodiments mutually exclusive of other embodiments. As such, the embodiments described herein, explicitly and implicitly understood by one skilled in the art, can be combined with other embodiments.

Certain embodiments provide a method to provide content to a local playback network. The example method includes identifying multimedia content from a content provider. The example method includes passing information regarding the multimedia content to a local playback system including one or more multimedia playback devices in response to a trigger. The example method includes facilitating play of the

Exhibit C

To: John LaBarre : Matthew Gubiott
Cc: Paul Kafadar
From: Mark Triplett
Sent: Thur 7/12/2018 3:20:28 PM (UTC-04:00)
Subject: Attached Sonos IP License Model
[Sonos IP License Model Presented 2018.07.12.pdf](#)

Thanks again John and Matt for your time. Attached is the PDF that we discussed today.

Thanks,
Mark

SONOS

IP License Model

7/12/2018

IP License Model

I. Overview

II. Licensing Rates (pages 2—13)

Step 1: Feature List of Smart Speakers

Step 1A: Features — Desirability and Marketability

Step 1B: Features — Sonos contributing IP, U.S.

Step 1C: Features — Sonos contributing IP, ROW

Step 2: Licensing Rate Calculation

Step 2A: Gross Profit

Step 2B: Per-Unit Rates — Google, U.S.

Step 2C: Per-Unit Rates — Google Ecosystem, U.S./ROW

III. Supporting Materials (pages 14—54)

Supporting Materials

Step 1: Included US Patents Overview

Marketed Feature	Feature Category	Google Max Feature Covered by Sonos Patent
Connected Playback Device (Standalone)	Connected Playback Device Setup	1 patent
	Wi-Fi Streaming	
	Support for only one streaming service	4 patents
	Speaker Support for Multiple Streaming Services	
	Line-in	1 patent
	Line-out	
	Bluetooth	
	Control Interface (SW)	3 patents
	Control Interface (HW)	1 patent
	Power and Power Management	2 patents
	Fault Detection/Recovery	1 patent
	Features Updates (SW)	
Voice Assistant Device (Standalone)	Smart Assistant (SW)	
	Voice Detection	
Multi-Device Platform	Multi-Device Playback Control (SW)	21 patents
	Multi-Device Playback (SW)	8 patents
	Multi-Device Voice	2 patents
	Smart Home Integration (SW)	
	Multi-Device Networking	
Premium Sound Device	Orientation	2 patents
	Bonded Zones	4 patents
	Custom Transducers	
	Calibration	2 patents
	Lossless Streaming	
	Sound Field Control	1 patent
	Custom Amplifiers	
	Enclosure	

Step 1: U.S. Patents Included

Sonos Patent Family	Patent Number		Marketed Feature
	9,727,302	9,733,893	
	9,182,777	9,176,520	
	9,164,532	9,733,891	
	9,218,017	9,733,892	
SYSTEM AND METHOD FOR SYNCHRONIZ- ING OPERATIONS AMONG A PLURALITY OF INDEPENDENTLY CLOCKED DIGITAL DATA PROCESSING DEVICES	9,195,258	8,938,637	
	9,207,905	8,370,678	Multi-Device Platform
	9,170,600	8,689,036	
	9,213,356	9,348,354	
	9,778,900	9,189,011	
	9,740,453	EP1654614	
	9,727,304	EP2648111	
METHOD AND SYSTEM FOR CONTROLLING AMPLIFIERS	9,252,721	9,246,442	Connected Playback Device (Standalone)
METHOD AND APPARATUS FOR CONTROL- LING MULTIMEDIA PLAYERS IN A MULTI- ZONE SYSTEM	8,588,949 (90/013,423)	7,571,014 (90/013,882)	Multi-Device Platform
PLAYBACK DEVICE CONNECTION	9,960,969		Connected Playback Device (Standalone)
CONTROLLING AND MANIPULATING	8,843,228	8,934,997	
GROUPINGS IN A MULTI-ZONE MEDIA SYS- TEM	9,749,760	9,860,657	Multi-Device Platform
	9,344,206		
	9,219,959 (90/013,756)	8,788,080	
MAKING AND INDICATING A STEREO PAIR	9,202,509 (90/013,859)	EP2695400	Premium Sound Device
	9,928,026	EP3059980	
SMART LINE-IN PROCESSING	9,686,606		Connected Playback Device (Standalone)
SHAPING SOUND RESPONSIVE TO SPEAKER ORIENTATION	9,042,556	EP2735171	Premium Sound Device
	9,748,647		Premium Sound Device
SYSTEMS AND METHODS FOR NETWORKED MUSIC PLAYBACK	9,860,589		Connected Playback Device (Standalone)
	8,930,005		
ACOUSTIC SIGNATURES	9,519,454		Connected Playback Device (Standalone)
DETECTING IMPROPER POSITION OF A PLAYBACK DEVICE	9,367,611		Connected Playback Device (Standalone)
AUDIO SETTINGS BASED ON ENVIRONMENT	9,219,460	9,872,119	Premium Sound Device Premium Sound Device
	9,654,459	9,363,255	
CLOUD QUEUE	9,942,215	9,648,071	Connected Playback Device (Standalone)
DEVICE GROUP IDENTIFICATION	9,348,824		Multi-Device Platform
PLAYBACK DEVICE CONTROL	9,671,780	EP3100156	Connected Playback Device (Standalone)
MULTI-CHANNEL PLAYBACK OF AUDIO CONTENT	9,973,851		Premium Sound Device
DEFAULT PLAYBACK DEVICE	9,826,306	9,820,039	Multi-Device Platform

Step 1: Feature List

1. Connected Playback Device. A stand-alone, network-enabled media player, speaker, or playback device.

1.1 Connected Playback Device Setup. Setup of the connected playback device.

1.1.1 Player Setup. Setup of connected playback device including setting up accounts and network access.

1.1.2 Streaming Service(s) Setup. Setup of streaming service account(s) on the playback device.

1.2 Wi-Fi Streaming. Obtaining media content for playback via wi-fi.

1.2.1 LAN/Local Source. Obtaining media content for playback from a local source on the same local area network (LAN) as the connected playback device.

1.2.2 Remote Source. Obtaining media content for playback from a remote source via a wide area network (WAN) (i.e., from the cloud).

1.3 Single Streaming Service Support. Playback device can only obtain media for playback from one streaming service.

1.3.1 Single Streaming Service Registration. Registering a single streaming service with the playback device thereby enabling the playback device to use streaming service credentials to access content from the streaming service.

1.3.2 Cloud Queue. The playback queue from which a playback device sources media items to play back is stored in and driven from the cloud. When the playback device needs to update its queue, it requests the items from the cloud.

1.4 Multiple Streaming Service Support. Playback device can obtain media from at least two streaming services for playback.

1.4.1 Switching between Music Services. Playback device can switch between obtaining media content from different streaming services for playback.

1.4.2 Universal Search. The playback system can simultaneously search across media catalogs of multiple streaming services.

Step 1: Feature List

Cont.

1.5 Line-In. Playback device has a physical media input port (e.g., aux port, optical port) or virtual input interface.

1.5.1 Physical Line-in Source Switching. Playback device can switch between playing back media received via the physical input port and media obtained via a virtual input source.

1.5.2 Virtual Line-in Source Switching. Non-physical, digital input for media. Playback device can switch between playing back media received via the physical input port and media obtained via the virtual input.

1.6 Line-Out. An audio output port.

1.7 Bluetooth.

1.7.1 Setup. Bluetooth used in playback device setup process, for example, to pass network credentials.

1.7.2 Real-Time Streaming. Playback device receives a real-time media stream via Bluetooth for playback.

1.8 (Software) Control Interface. Control interface on a device distinct from the playback device.

1.8.1 Guest Access. Access to a playback device by a guest to thereby enable a guest to use a playback device without receiving network or other account credentials.

1.8.2 Native Control. Control interface provided by the same party as the playback device

1.8.3 Direct Control. Control of a playback device via a third-party's control interface.

1.9 (Hardware) Control Interface. Control interface on the playback device (e.g., touch interface).

1.10 Power and Power Management.

Step 1: Feature List

Cont.

1.11 Fault Detection/Recovery.

1.12 (Software/Firmware) Feature Updates. New features can be added to the playback device.

1.12.1 Firmware/Configuration Updates. New features can be added to the playback device through firmware updates.

1.12.2 App Store. New features can be added to the playback device by installing apps.

1.12.3 Skills. New features can be added to the playback device by enabling skills.

1.13 Industrial Design. Design of the connected playback device.

Exhibit D

US009363255B2

(12) **United States Patent**
Coburn, IV

(10) **Patent No.:** **US 9,363,255 B2**
(45) **Date of Patent:** **Jun. 7, 2016**

(54) **CLOUD QUEUE PLAYHEAD**

3/165; G06F 3/167; G11B 20/40527; H04N
21/4307; H04R 2227/005; H04R 3/12

(71) Applicant: **Sonos, Inc.**, Santa Barbara, CA (US)

See application file for complete search history.

(72) Inventor: **Arthur L. Coburn, IV**, Lexington, MA
(US)

(56)

References Cited

U.S. PATENT DOCUMENTS

5,923,902 A 7/1999 Inagaki
6,256,554 B1 7/2001 DiLorenzo
(Continued)

FOREIGN PATENT DOCUMENTS

WO 0153994 7/2001
WO 2012115742 A1 8/2012
WO 2014039163 A1 3/2014

OTHER PUBLICATIONS

International Searching Authority, International Search Report and
Written Opinion mailed on Sep. 7, 2015, issued in connection with
International Application No. PCT/US2015/033008, filed on May
28, 2015, 19 pages.

International Searching Authority, International Search Report and
Written Opinion mailed on Aug. 12, 2015, issued in connection with
International Application No. PCT/US2015/031930, filed on May
21, 2015, 12 pages.

(Continued)

Primary Examiner — Andrew C Flanders

(74) *Attorney, Agent, or Firm* — McDonnell Boehnen
Hulbert & Berghoff LLP

(57)

ABSTRACT

An example implementation may involve a computing system receiving, from a media playback system, a request for an indication of a playhead pointer for a particular queue of media items. The implementation may also involve the computing system identifying a position of a playhead pointer within the particular queue of media items. Each position in the queue may correspond to a media item. The implementation may further involve the computing system sending, to the media playback system, an indication of the playhead pointer. The indication of the playhead pointer indicates the assigned position of the playhead pointer.

20 Claims, 20 Drawing Sheets

(21) Appl. No.: **14/616,364**

(22) Filed: **Feb. 6, 2015**

(65) **Prior Publication Data**

US 2015/0358381 A1 Dec. 10, 2015

Related U.S. Application Data

(60) Provisional application No. 62/007,906, filed on Jun. 4, 2014.

(51) **Int. Cl.**

G06F 17/00 (2006.01)
H04L 29/06 (2006.01)
H04L 29/08 (2006.01)
G06F 3/16 (2006.01)

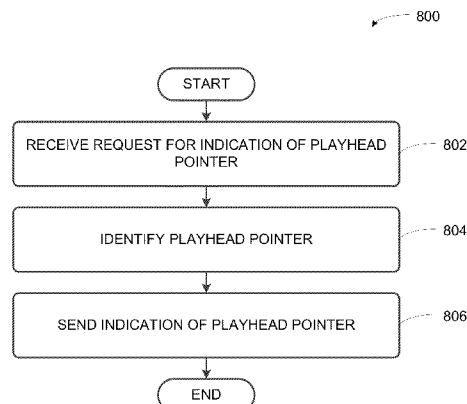
(Continued)

(52) **U.S. Cl.**

CPC **H04L 63/08** (2013.01); **G05B 15/02**
(2013.01); **G06F 3/16** (2013.01); **G06F 3/165**
(2013.01); **G06F 17/30058** (2013.01); **H04H**
60/80 (2013.01); **H04L 63/083** (2013.01);
H04L 63/105 (2013.01); **H04L 65/1003**
(2013.01); **H04L 65/60** (2013.01); **H04L**
65/602 (2013.01); **H04L 65/608** (2013.01);
H04L 67/1095 (2013.01); **H04L 67/12**
(2013.01)

(58) **Field of Classification Search**

CPC G06F 17/30038; G06F 17/3074; G06F
17/30761; G06F 3/0482; G06F 3/16; G06F



US 9,363,255 B2

1

CLOUD QUEUE PLAYHEAD**CROSS REFERENCE TO RELATED APPLICATIONS**

This application claims priority to U.S. Provisional Patent Application Ser. No. 62/007,906 filed Jun. 4, 2014, entitled "Cloud Queue," which is incorporated herein in its entirety.

This application is related to the following applications filed on the same day as the present application, the contents of each are incorporated by reference herein: entitled "Cloud Queue Access Control," U.S. application Ser. No. 14/616,310 filed Feb. 6, 2015; entitled "Cloud Queue Access Control," U.S. application Ser. No. 14/616,319 filed Feb. 6, 2015; entitled "Cloud Queue Access Control," U.S. application Ser. No. 14/616,325 filed Feb. 6, 2015; entitled "Cloud Queue Sync Protocol," U.S. application Ser. No. 14/616,332 filed Feb. 6, 2015; and entitled "Cloud Queue Playback Policy," U.S. application Ser. No. 14/616,341 filed Feb. 6, 2015.

FIELD OF THE DISCLOSURE

The disclosure is related to consumer goods and, more particularly, to methods, systems, products, features, services, and other elements directed to media playback or some aspect thereof.

BACKGROUND

Options for accessing and listening to digital audio in an out-loud setting were limited until in 2003, when SONOS, Inc. filed for one of its first patent applications, entitled "Method for Synchronizing Audio Playback between Multiple Networked Devices," and began offering a media playback system for sale in 2005. The Sonos Wireless HiFi System enables people to experience music from many sources via one or more networked playback devices. Through a software control application installed on a smartphone, tablet, or computer, one can play what he or she wants in any room that has a networked playback device. Additionally, using the controller, for example, different songs can be streamed to each room with a playback device, rooms can be grouped together for synchronous playback, or the same song can be heard in all rooms synchronously.

Given the ever growing interest in digital media, there continues to be a need to develop consumer-accessible technologies to further enhance the listening experience.

BRIEF DESCRIPTION OF THE DRAWINGS

Features, aspects, and advantages of the presently disclosed technology may be better understood with regard to the following description, appended claims, and accompanying drawings where:

FIG. 1 shows an example media playback system configuration in which certain embodiments may be practiced;

FIG. 2 shows a functional block diagram of an example playback device;

FIG. 3 shows a functional block diagram of an example control device;

FIG. 4 shows an example controller interface;

FIG. 5 shows an computing system that may practice certain embodiments;

FIG. 6 shows an example cloud computing system in which certain embodiments may be practiced;

FIG. 7 is an example playback queue;

2

FIG. 8 is an example flow diagram to facilitate playback using a playhead pointer;

FIG. 9A shows a first instance of an example environment in which certain embodiments may be practiced;

FIG. 9B shows a second instance of the example environment in which certain embodiments may be practiced;

FIG. 10 is another example flow diagram to facilitate playback using a playhead pointer;

FIG. 11 shows an example controller interface that includes an indication of a playhead pointer;

FIG. 12 is an example flow diagram to synchronize a local queue with a cloud queue;

FIG. 13A shows a first instance of a second example environment in which certain embodiments may be practiced;

FIG. 13B shows a second instance of the second example environment in which certain embodiments may be practiced;

FIG. 13C shows a third instance of the second example environment in which certain embodiments may be practiced;

FIG. 14 is another example flow diagram to synchronize a local queue with a cloud queue;

FIG. 15 is an example flow diagram to identify playback policies associated with a queue;

FIG. 16 shows a third example environment in which certain embodiments may be practiced;

FIG. 17 is an example flow diagram to display a graphical indication of a playback policy;

FIG. 18A shows an example controller interface that includes a graphical indication of a playback policy; and

FIG. 18B shows another example controller interface that includes a graphical indication of a playback policy.

The drawings are for the purpose of illustrating example embodiments, but it is understood that the inventions are not limited to the arrangements and instrumentality shown in the drawings.

DETAILED DESCRIPTION**I. Overview**

Embodiments described herein may involve, inter alia, play back of a cloud-based playback queue ("cloud queue"). In some embodiments, a computing system may maintain or have access to a cloud queue of media items. Such a computing system may be referred to a remote server, as one or more networks, such as a local area network and a wide area network (e.g., the Internet), may separate the computing system from entities, such as media playback systems, that might access the cloud queue. While such entities may access the cloud queue remotely (i.e., via one or more networks), they may play back media items of the cloud queue locally (e.g., on respective playback devices). Various techniques may facilitate play back of such a cloud queue.

Some examples techniques may involve management of a "playhead." A playhead may indicate, or "point to," a particular media item of the cloud queue and be referred to as a "playhead pointer." A playhead pointer may identify the currently playing media item of the cloud queue, or perhaps a media item that will be currently playing if playback of the cloud queue is initiated. Assigning a playhead pointer to a particular position of the queue may have various advantages. For instance, during playback of a cloud queue by a media playback system, a computing system may identify particular media items to indicate to the media playback system by reference to the playhead pointer. A playhead pointer may also facilitate multiple media playback systems playing back the cloud queue in synchrony.

Exhibit E

SONOS

Mark Triplett | VP Intellectual Property

614 Chapala Street
Santa Barbara, CA 93101
sonos.com

VIA EMAIL

February 22, 2019

Google Inc.
1600 Amphitheatre Parkway
Mountain View, CA 94043

Dear Matt, Brad, and Tim:

Thanks again for meeting with Chris and me last November 13th. While we were hoping to receive Google's substantive feedback on Sonos's previously proposed licensing model, we nevertheless appreciated learning about Google's counter proposal.

Feedback on Google's Model

Unlike Sonos's model, which is based on the well-established *Georgia-Pacific* approach, we were unable to identify a legal basis for the purported "[REDACTED]" approach Google pursues. Further, after studying Google's model, we have identified several flaws that render Google's model unreliable. For instance:

- It does not appear that Google's model correctly applied the total number of Sonos patents relevant to each Google device to the respective revenue for each of those devices. For example, the Home Max infringes more total Sonos patents than either the Home or the Home Mini, yet Google's model [REDACTED].
- Google's model relies on [REDACTED]. Additionally, small changes to these inputs dramatically skew the results, leaving the parties to argue over minute changes to the factors/multipliers without clarity around what the inputs mean. More specifically:
 - Google's model identifies the universe of "[REDACTED]" patents to include [REDACTED] patents. However, the number of patents used in the "[REDACTED]" [REDACTED] should only be those patents that are commercially valuable to the parties' products at issue, and it is well known that only 2-10% of patents are commercially valuable or licensed. See, e.g., [forbes.com](https://www.forbes.com); [ipwatchdog.com](https://www.ipwatchdog.com); [greyb.com](https://www.greyb.com). Thus, Google's model

should have used no more than 10% of the [REDACTED] “ [REDACTED] ” to determine the parties’ respective “ [REDACTED] ”

- Google’s model relies on an “ [REDACTED] [REDACTED] ” that allegedly “ [REDACTED] [REDACTED] ” of the parties’ patents. However, Google has not provided [REDACTED]. Nevertheless, the “ [REDACTED] [REDACTED] ” for Sonos’s patents should be relatively high given the fundamental and foundational nature of Sonos’s inventions, the fact that some of the asserted patents have already gone through validity challenges in litigation and reexamination proceedings, and the overwhelming evidence of Google’s infringement as detailed in the claim charts Sonos has provided herewith for 100 Sonos patents. See [Sonos-Google Infringement Claim Charts](#).¹
- Google’s model relies on a “ [REDACTED] ” [REDACTED] that [REDACTED]. To be clear, Google has had written notice of Google’s infringement of many of Sonos’s core patents since at least October 2016 – prior to the release of its Home devices.
- Google has underestimated the number of Sonos patents that it infringes at 43. During our meeting on July 12, 2018, we provided detailed tables that identified Google’s infringement of 53 Sonos patents. In addition, after continued review of Google’s products and Sonos’s growing patent portfolio (in fact, Sonos is getting at least 4 new patents per week directly related to the Sonos technology used by Google), Sonos has determined that Google infringes no less than 100 Sonos patents today.
- Google has overestimated the number of Google patents that Sonos allegedly infringes at [REDACTED]. After extensive review and analysis of Google’s patents, Sonos has determined that no more than 4 Google patents merit consideration in the present discussions. Sonos looks forward to discussing the reasons that the other identified Google patents are not relevant.

There are also a number of additional flaws in Google’s model, including, but not limited to, [REDACTED]

¹ To be clear, these infringement claim charts constitute Confidential Information under the parties’ NDA, and shall not be used for any purpose except to evaluate and engage in discussions and negotiations concerning the parties’ exploration of a business opportunity regarding various intellectual property rights. These claim charts are also protected under Rule 408 of the Federal Rules of Evidence. Further, it should be understood that the asserted claims, accused instrumentalities, accused functionality, and supporting evidence identified in the claim charts are merely representative, and based upon publicly available information known to Sonos at this time. As such, these claim charts shall not limit Sonos’s infringement allegations in any way and are subject to change based on additional information that becomes known to Sonos.

Next Steps

We would like to come to an understanding on a path towards completion of a patent licensing agreement (PLA) as contemplated in the parties' Collaboration Agreement. To that end, we would ask that Google review Sonos's detailed infringement claim charts, provide substantive feedback on Sonos's licensing model, and consider the above feedback on Google's model. For our part, we are willing to spend additional time educating Google about the merits of our patent assertions, explaining the shortfalls in Google's asserted patents, and/or engaging in discussions about the appropriate inputs to the respective licensing models that the parties have put forward.

Please let us know when you are available for another meeting to discuss these issues.

My best,

A handwritten signature in black ink, appearing to read "Mark Triplett", written in a cursive style.

Mark Triplett
Sonos, Inc., VP Intellectual Property

A solid black rectangular redaction mark covering the signature area.

Exhibit F

To: John LaBarre
Cc: Tom Cullen
Shelburne
From: Mark Triplett
Sent: Fri 9/2/2016 8:25:54 PM (UTC-04:00)
Subject: Sonos Meeting Follow Up
[Patent Identification for Google Aug 2016.docx](#)

Hi all,

Thanks again for meeting on Wednesday. I appreciate your willingness to understand what Sonos has invented and protected over the years, and how that IP is relevant to Google. Pursuant to your request, my team and I will prepare material to educate Lou and/or John (I don't have Lou's email, so please forward to him) at a level between what I presented at the meeting and claim charts. We can also show the top 20 most interesting prior art references, if that's of interest to you. I and a member from my team will be able to walk you through that material the week of September 19th.

Please let me know what days/times work best and I can calendar the time. In the meantime, you have my 3 overview slides and I further included a document that specifically lists:

- (1) 16 patents (directly relevant today)
- (2) 4 allowed patent applications (directly relevant today)
- (3) 8 other patent specifications that those folks close to Cast should readily understand the relevance by reading the overview sections at a minimum.

Again, we seek to reach a licensing agreement with Google for the Sonos portfolio of utility patents. My team works hard to maximize the value of each of our patents and the value is evidenced by our finding that over 50% of them are practiced today. To drive the continued value of our patents, we interview every case with the Patent Office and we are interested in always learning. If you have something to share with us about any particular patent(s) as it relates to Google, we are all ears. We keep the patent families alive to ensure over time that we accurately and precisely protect all the patentable innovations brought to this world by Sonos.

To reiterate, I don't view any of this information as confidential – I value a transparent and open approach to our continued work together.

Enjoy a nice, long weekend in observance of the Labor Day holiday!

My Best,
Mark

Mark Triplett
Sonos Intellectual Property | [REDACTED] | [REDACTED]

Issued Patents Relevant to Google Today (end of August 2016)

	Patent No.	Title	Sonos Taxonomy
1	9,213,357	Obtaining Content from Remote Source for Playback	Audio Content, LAN/WAN to Household
2	9,195,258	System and Method for Synchronizing Operations Among a Plurality of Independently Clocked Digital Data Processing Devices	Platform, Group Management (Status)
3	9,164,532	Method and Apparatus for Displaying Zones in a Multi-Zone System	Control, Grouping
4	9,207,905	Method and Apparatus for Providing Synchrony Group Status Information	Platform, Group Management (Status)
5	9,170,600	Method and Apparatus for Providing Synchrony Group Status Information	Platform, Group Management (Status)
6	9,213,356	Method and Apparatus for Synchrony Group Control via One or More Independent Controllers	Platform, Group Management (Status)
7	9,182,777	System and Method for Synchronizing Operations Among a Plurality of Independently Clocked Digital Data Processing Devices	Platform, Group Management (Arrangement)
8	9,189,011	Method and Apparatus for Providing Audio and Playback Timing Information to a Plurality of Networked Audio Devices	Audio Content, LAN/WAN to Household
9	9,218,017	Systems and Methods for Controlling Media Players in a Synchrony Group	Control, Grouping
10	8,938,637	Systems and Methods for Synchronizing Operations Among a Plurality of Independently Clocked Digital Data Processing Devices Without a Voltage Controlled Crystal Oscillator	Platform, Synchronization
11	8,370,678	Systems and Methods for Synchronizing Operations Among a Plurality of Independently Clocked Digital Data Processing Devices Without a Voltage Controlled Crystal Oscillator	Platform, Synchronization
12	8,689,036	Systems and Methods for Synchronizing Operations Among a Plurality of Independently Clocked Digital Data Processing Devices Without a Voltage Controlled Crystal Oscillator	Platform, Synchronization
13	8,588,949	Method and Apparatus for Adjusting Volume Levels in a Multi-Zone System	Control, Volume
14	7,571,014	Method and Apparatus for Controlling Multimedia Players in a Multi-Zone System	Control, Volume
15	9,348,824	Device Group Identification	Platform, Group Management (Arrangement)
16	8,930,005	Acoustic Signatures in a Playback System	Control, Setup

Allowed Patent Applications Relevant to Google Today (end of August 2016)

	App. No.	Title	Class/Subclass
1	14/558,944	Acoustic Signatures	Platform, Setup
2	14/679,815	Acoustic Signatures	Control, Setup
3	14/521,682	Device Playback Failure Recovery and Redistribution	Platform, Setup
4	14/520,566	Systems and Methods for Networked Music Playback	Control, Playback

Selected Additional Patent Disclosures of Interest to Google

	Pat. or App. No.	Title	Class/Subclass
1	9,202,509	Controlling and Grouping in a Multi-Zone Media System	Platform, Bonded Zone
2	9,219,959	Multi-Channel Pairing in a Media System	Platform, Bonded Zone
3	8,938,312	Smart Line-In Processing	Audio Content, Direct Connection to Household
4	9,130,771	Establishing A Secure Wireless Network with Minimum Human Intervention	Control, Setup
5	8,483,853	Controlling and Manipulating Groupings in a Multi-Zone Media System	Control, Grouping
6	9,363,255	Cloud Queue Playhead	Platform, Queue Management
7	14/041,989	Coordinator selection	Platform, Group Management
8	9,288,596	Coordinator Device for Paired or Consolidated Players	Platform, Bonded Zone

Exhibit G

US009232277B2

(12) **United States Patent**
Vega-Zayas et al.

(10) **Patent No.:** **US 9,232,277 B2**
(45) **Date of Patent:** **Jan. 5, 2016**

(54) **ASSOCIATING PLAYBACK DEVICES WITH
PLAYBACK QUEUES**

(56) **References Cited**

U.S. PATENT DOCUMENTS

(71) Applicant: **Sonos, Inc.**, Santa Barbara, CA (US)
(72) Inventors: **Luis R. Vega-Zayas**, Cambridge, MA
(US); **Kristen Johansen**, Santa Barbara,
CA (US); **Paul Bates**, Santa Barbara, CA
(US); **Abhishek Kumar**, Santa Barbara,
CA (US)
(73) Assignee: **Sonos, Inc.**, Santa Barbara, CA (US)

5,406,634	A	4/1995	Anderson et al.
5,856,827	A	1/1999	Sudo
5,923,902	A	7/1999	Inagaki
6,002,862	A	12/1999	Takaiki
6,181,316	B1	1/2001	Little et al.
6,255,961	B1	7/2001	Van Ryzin et al.
6,256,554	B1	7/2001	DiLorenzo
6,404,811	B1	6/2002	Cvetko et al.
6,522,886	B1	2/2003	Youngs et al.
6,587,127	B1	7/2003	Leeke et al.
6,611,537	B1	8/2003	Edens et al.

(Continued)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 186 days.

FOREIGN PATENT DOCUMENTS

KR	10-2005-0013230	2/2005
WO	0153994	7/2001

OTHER PUBLICATIONS

(21) Appl. No.: **13/944,702**

"AudioTron Quick Start Guide, Version 1.0", Voyetra Turtle Beach, Inc., Mar. 2001, 24 pages.

(22) Filed: **Jul. 17, 2013**

(Continued)

(65) **Prior Publication Data**

US 2015/0025661 A1 Jan. 22, 2015

Primary Examiner — Andrew C Flanders

(74) *Attorney, Agent, or Firm* — McDonnell Boehnen Hulbert & Berghoff LLP

(51) **Int. Cl.**

G06F 17/00 (2006.01)
H04N 21/482 (2011.01)
G11B 27/10 (2006.01)
H04N 21/4363 (2011.01)
H04N 21/439 (2011.01)

(52) **U.S. Cl.**

CPC **H04N 21/482** (2013.01); **G11B 27/105**
(2013.01); **H04N 21/439** (2013.01); **H04N**
21/43637 (2013.01); **H04R 2227/005** (2013.01)

(58) **Field of Classification Search**

CPC H04N 21/4825; H04N 21/43615;
H04N 21/26258; G06F 17/30053; G06F
17/30017; G06F 3/0482; H04R 2227/005

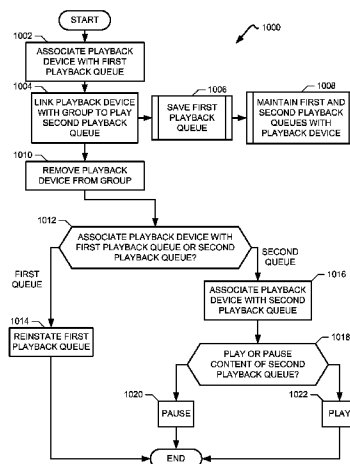
See application file for complete search history.

(57)

ABSTRACT

An example method includes receiving a first command by a device to group a first playback device with at least a second playback device for synchronous audio playback. In the example method, the group is associated with a first playback queue comprising a list of one or more items for playback by the group. The example method includes, for as long as the playback device is in the group, receiving a second command by the device to remove the first playback device from the group, wherein the first playback device is ungrouped and automatically associated with a second playback queue. In the example method, the second playback queue comprises a list of one or more items for playback by the playback device.

23 Claims, 11 Drawing Sheets



US 9,232,277 B2

1

ASSOCIATING PLAYBACK DEVICES WITH PLAYBACK QUEUES

FIELD OF THE DISCLOSURE

The disclosure is related to consumer goods and, more particularly, to methods, systems, products, features, services, and other items directed to media playback or some aspect thereof.

BACKGROUND

Digital music has become readily available due in part to the development of consumer level technology that has allowed people to listen to digital music on a personal audio device. The consumer's increasing preference for digital audio has also resulted in the integration of personal audio devices into PDAs, cellular phones, and other mobile devices. The portability of these mobile devices has enabled people to take the music listening experience with them and outside of the home. People have become able to consume digital music, like digital music files or even Internet radio, in the home through the use of their computer or similar devices. Now there are many different ways to consume digital music, in addition to other digital content including digital video and photos, stimulated in many ways by high-speed Internet access at home, mobile broadband Internet access, and the consumer's hunger for digital media.

Until recently, options for accessing and listening to digital audio in an out-loud setting were severely limited. In 2005, Sonos offered for sale its first digital audio system that enabled people to, among many other things, access virtually unlimited sources of audio via one or more networked connected zone players, dynamically group or ungroup zone players upon command, wirelessly send the audio over a local network amongst zone players, and play the digital audio out loud in synchrony. The Sonos system can be controlled by software applications downloaded to certain network capable, mobile devices and computers.

Given the insatiable appetite of consumers towards digital media, there continues to be a need to develop consumer technology that revolutionizes the way people access and consume digital media.

BRIEF DESCRIPTION OF THE DRAWINGS

Features, aspects, and advantages of the presently disclosed technology may be better understood with regard to the following description, appended claims, and accompanying drawings where:

FIG. 1 shows an example configuration in which certain embodiments may be practiced;

FIG. 2A shows an illustration of an example zone player having a built-in amplifier and transducers;

FIG. 2B shows an illustration of an example zone player having a built-in amplifier and connected to external speakers;

FIG. 2C shows an illustration of an example zone player connected to an A/V receiver and speakers;

FIG. 3 shows an illustration of an example controller;

FIG. 4 shows an internal functional block diagram of an example zone player;

FIG. 5 shows an internal functional block diagram of an example controller;

FIG. 6 shows an example network for media content playback;

FIG. 7 shows an example ad-hoc playback network;

2

FIG. 8 shows a system including a plurality of networks including a cloud-based network and at least one local playback network;

FIG. 9 illustrates a flow diagram of an example method to associate a playback device with a playback queue;

FIG. 10 illustrates a flow diagram of an example method to maintain and associate a playback device with at least one of a saved playback queue or a group queue;

FIG. 11 shows an example system including a plurality of playback queues and at least one associated example zone player.

In addition, the drawings are for the purpose of illustrating example embodiments, but it is understood that the inventions are not limited to the arrangements and instrumentality shown in the drawings.

DETAILED DESCRIPTION

I. Overview

A media playback device may be configured to play audio content from a playback queue associated with or assigned to the playback device. In some examples, the playback device may be grouped with another playback device to play audio in synchrony, and in some examples, a playback queue is associated with or assigned to the group. At some point, the playback device may be removed from the group. Upon removal of the playback device from the group, a user may wish to play audio from the playback device, either at the time of removal from the group or at a later time, without manually reassigning the playback device to a playback queue.

Creation of playback queues is an important element in playing audio from a playback device or a group of playback devices. In some examples, a user may create a playback queue and assign a playback device (or group of playback devices) to the playback queue at the time of creation of the playback queue. In other examples, a user may create a playback queue, however, the user may choose not to assign a playback device (or group of playback devices) to the playback queue until a later time such that the playback queue persists without being assigned to a playback device (or group of playback devices).

Example methods, apparatus, systems, and articles of manufacture disclosed herein enable a playback device to automatically associate with a playback queue such that the playback device is continuously enabled to play content from a playback queue. For example, a playback device may associate with a first playback queue. At some future point in time, the playback device may link to a group of playback devices such that the playback device plays content from a second playback queue that is associated with the group. In some examples, the playback device may maintain an association with the first playback queue while it is in the group. For as long as the playback device is in the group, the playback device may be selectively removed from the group. Upon removal from the group, the playback device is automatically associated with a playback queue. In some examples, the playback device may restore the first playback queue, maintain the association with the second playback queue, and/or associate with a new playback queue. Further examples disclosed herein provide for the creation and persistence of playback queues without an association to a playback device or group of playback devices. Example methods and apparatus disclosed herein may advantageously provide for improved usability of a playback device upon dissociation of the playback device from a networked group as well as improved configurability of playback queues.

includes a plurality of playback devices or players, though it is understood that the playback network may contain only one playback device. In certain embodiments, each player has an ability to retrieve its content for playback. Control and content retrieval can be distributed or centralized, for example. Input can include streaming content provider input, third party application input, mobile device input, user input, and/or other playback network input into the cloud for local distribution and playback.

As illustrated by the example system **800** of FIG. **8**, a plurality of content providers **820-850** can be connected to one or more local playback networks **860-870** via a cloud and/or other network **810**. Using the cloud **810**, a multimedia audio system server **820** (e.g., Sonos™), a mobile device **830**, a third party application **840**, a content provider **850** and so on can provide multimedia content (requested or otherwise) to local playback networks **860, 870**. Within each local playback network **860, 870**, a controller **862, 872** and a playback device **864, 874** can be used to playback audio content.

VIII. Associating with Playback Queues

FIG. **9** shows an illustrative flowchart for an example method **900** to automatically associate a playback device (e.g., zone player) with a playback queue upon dissociation of the playback device from a group of networked playback devices. FIG. **9** further shows the example method **900** to include maintaining an association with multiple playback queues.

At block **902**, a playback device is associated with a first playback queue. In some examples, the playback device is associated with the first playback queue when the queue is created. In other examples, the first playback queue is an existing playback queue with which the playback device is associated. For example, after creation, the first playback queue may persist for a period of time without being associated with the playback device and/or any other playback devices or networked groups of playback devices. In some examples, the playback device plays the audio content of the first playback queue. In such examples, the first playback queue may be considered an active queue of the playback device.

In some embodiments, the first playback queue and/or other playback queues discussed herein are stored locally in memory on the playback device. In other embodiments, playback queues, including the first playback queue, are stored remotely relative to the playback device. For example, the first playback queue may be stored in a cloud-based network or on a second playback device for access by the playback device.

In some embodiments, the first playback queue and/or other playback queues discussed herein include information identifying one or more items of audio content for play by the playback device. In other embodiments, the first playback queue includes zero items, such that the first playback queue has been created and is associated with the playback device, but does not yet include information identifying audio content for playback. Information identifying audio content may be continuously added to and/or removed from the first playback queue and/or other playback queues discussed herein.

At block **904**, the playback device joins a group of playback devices to play audio in synchrony. The group includes at least a second playback device and in some examples, the group includes additional playback devices. A second playback queue, or group queue, is associated with the group for playback of audio content by the playback devices of the group. In some examples, one or more of the playback device,

the second playback device, and/or other playback devices of the group is a bonded zone (e.g., a consolidated player, a paired player, etc.).

Upon joining the group, the playback device is associated with the group queue. In joining the group, the playback device plays the content of the group queue synchronously with the other playback devices of the group, including the second playback device. In some embodiments, a copy of the group queue may be stored in the memory on the playback device such that the playback device plays from the local copy. In some examples, the playback device plays content of the group queue by accessing pointers associated with the media content. In other embodiments, the playback device plays the content of the group queue without receiving a copy of the group queue. In such examples, the playback device receives content to play from the second playback queue without, for example, storing a copy of the second playback queue.

As described at block **906**, in some examples of the example method **900**, when the playback device is linked to the group, the playback device maintains an association with the first playback queue while associated with the second playback queue (i.e., group queue). In some embodiments, the playback device maintains the first playback queue by locally storing a copy of the first playback queue upon joining the group. In other embodiments, the first playback queue is stored remotely and the playback device maintains an association with the remotely stored first playback queue. In yet another embodiment, the playback device may save the items of the first playback queue in the order of play at the time the playback device joined the group or in some other configuration. In addition to maintaining an association with the first playback queue upon joining the group, the playback device is associated with the second playback queue such that the playback device is simultaneously associated with both the first playback queue and the second playback queue.

In some embodiments, the playback device may associate with multiple playback queues in addition to the first playback queue and the second playback queue while in the group, via, for example, local storage of or remote access to additional playback queues. Although the playback device may associate with multiple playback queues, a particular playback queue may be selected as the active queue for the playback device. The playback device plays the audio content of the active queue. For example, as a member of the group, the playback device may play the group queue as the active queue. In some embodiments, a particular playback queue is selected as the active queue by, for example, assigning the playback queue as the active queue for the playback device.

At block **908**, the playback device is removed from the group. Removing the playback device from the group may involve, for example, a user input to ungroup or remove the playback device from the group. In some examples, the playback device leaves the group and is a stand-alone device not associated with any other groups. As a stand-alone device, the playback device may be a part of a bonded zone. In other examples, the playback device leaves the group and joins a different group.

Upon removal from the group, the playback device is associated with at least one playback queue such that the playback device is enabled to play content from the playback queue after removal from the group. In some embodiments, the playback device is automatically directed to a playback queue without further user input. In further embodiments, upon removal from the group, a playback queue is automatically assigned as the active playback queue of the playback device such that the playback device plays audio content of the active

Exhibit H

US009674587B2

(12) **United States Patent**
Triplett et al.

(10) **Patent No.:** **US 9,674,587 B2**

(45) **Date of Patent:** **Jun. 6, 2017**

(54) **SYSTEMS AND METHODS FOR
NETWORKED MUSIC PLAYBACK
INCLUDING REMOTE ADD TO QUEUE**

(56) **References Cited**

U.S. PATENT DOCUMENTS

(75) Inventors: **Mark Triplett**, Hinsdale, IL (US);
Jonathan P. Lang, Santa Barbara, CA
(US); **Hrishikesh Gossain**, Santa
Barbara, CA (US)

5,923,902 A 7/1999 Inagaki
6,256,554 B1 7/2001 DiLorenzo
(Continued)

FOREIGN PATENT DOCUMENTS

(73) Assignee: **Sonos, Inc.**, Santa Barbara, CA (US)

JP 2006054521 2/2006
JP 2007512718 5/2007

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 243 days.

(Continued)

OTHER PUBLICATIONS

(21) Appl. No.: **13/533,785**

(22) Filed: **Jun. 26, 2012**

(65) **Prior Publication Data**

US 2013/0343567 A1 Dec. 26, 2013

(51) **Int. Cl.**
G06F 17/00 (2006.01)
H04N 21/8352 (2011.01)
(Continued)

Apple, "Welcome. You're watching Apple TV." Apple TV 1st
Generation Setup Guide, Apr. 8, 2008 <http://manuals.info.apple.com/MANUALS/0/MA403/en_US/AppleTV_SetupGuide.pdf>
Retrieved Oct. 14, 2014, 40 pages.

(Continued)

Primary Examiner — Leshui Zhang

(74) *Attorney, Agent, or Firm* — McDonnell Boehnen
Hulbert & Berghoff LLP

(52) **U.S. Cl.**
CPC **H04N 21/8352** (2013.01); **G06F 3/0482**
(2013.01); **G06F 3/165** (2013.01);
(Continued)

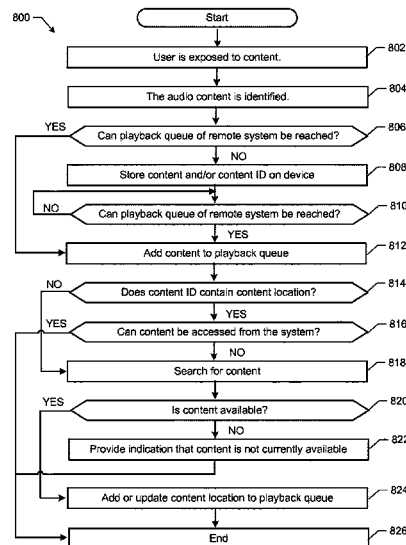
(57) **ABSTRACT**

Systems, methods, apparatus, and articles of manufacture to facilitate discovery and remote configuration of content for playback via a multimedia playback network are disclosed. An example method includes facilitating identification of multimedia content being played, the identification including at least one of a content identifier associated with the content and the content itself. An example method includes relaying at least one of the content identifier and the content to a playback system located remotely from a location of the multimedia content playback, at least one of the content identifier and the content remotely added for playback at the playback system.

(58) **Field of Classification Search**
CPC G06Q 50/10; G06Q 30/0255; G06Q 50/01;
G06Q 10/00; G06Q 10/107; G06Q 20/32;
G06Q 30/00; G06Q 40/00; G06F 15/16;
G06F 15/173; G06F 17/00; G06F 17/30;
G06F 17/30743; G06F 17/30749; G06F
17/30758; G06F 17/30772; G06F
17/30761; G06F 17/30053; G06F
17/30753;

(Continued)

26 Claims, 9 Drawing Sheets



US 9,674,587 B2

1

SYSTEMS AND METHODS FOR NETWORKED MUSIC PLAYBACK INCLUDING REMOTE ADD TO QUEUE

FIELD OF THE DISCLOSURE

The disclosure is related to consumer electronics and, more particularly, to providing music for playback via one or more devices on a playback data network.

BACKGROUND

Technological advancements have increased the accessibility of music content, as well as other types of media, such as television content, movies, and interactive content. For example, a user can access audio, video, or both audio and video content over the Internet through an online store, an Internet radio station, a music service, a movie service, and so on, in addition to the more traditional avenues of accessing audio and video content. Demand for audio, video, and both audio and video content inside and outside of the home continues to increase.

BRIEF DESCRIPTION OF THE DRAWINGS

Features, aspects, and advantages of the presently disclosed technology are better understood with regard to the following description, appended claims, and accompanying drawings where:

FIG. 1 shows an illustration of an example system in which embodiments of the methods and apparatus disclosed herein can be implemented;

FIG. 2A shows an illustration of an example zone player having a built-in amplifier and speakers;

FIG. 2B shows an illustration of an example zone player having a built-in amplifier and connected to external speakers;

FIG. 2C shows an illustration of an example zone player connected to an A/V receiver and speakers;

FIG. 3 shows an illustration of an example controller;

FIG. 4 shows an internal functional block diagram of an example zone player;

FIG. 5 shows an internal functional block diagram of an example controller;

FIG. 6 shows an example ad-hoc playback network;

FIG. 7 shows a system including a plurality of networks including a cloud-based network and at least one local playback network;

FIG. 8 illustrates a flow diagram for an example method to facilitate remote multimedia identification and playback; and

FIG. 9 shows an illustration of an example system to facilitate identification and transfer of content to a playback network.

In addition, the drawings are for the purpose of illustrating example embodiments, but it is understood that the present disclosure is not limited to the arrangements and instrumentality shown in the drawings.

DETAILED DESCRIPTION

I. Overview

Listening to audio content out loud can be a social activity that involves family, friends, or both. Audio content may include, for instance, music, talk radio, books, audio from television, and other audible material. For example, in a

2

household, people may play music out loud at parties and other social gatherings. In such an environment, people may wish to play the music in one listening zone or multiple listening zones simultaneously, such that the music in each listening zone may be synchronized, without audible echoes or glitches. Such an experience may be further enriched when people, for example, browse audio sources, add a music track to a playback queue, learn more about a music track (such as track title or track artists), or view what music track is next in the playback queue.

Listening to audio content out loud can also be an individual experience. For example, an individual may play music out loud for themselves in the morning before work, in the evening during dinner, or at other times throughout the day at home, work, or on the road. For these individual experiences, the individual may choose to either use headphones or limit the out loud playback of audio content to a single zone or area.

Discovery of audio can also be an important element of the experience. By way of illustration, discovery may involve friends telling each other about their latest favorite new song or artist. In some cases, discovery may involve browsing music magazines and periodicals that regularly review the latest releases. In addition, some online music services, radio stations, and disc jockeys are also means for people to share and discover new music or audio.

Generally speaking, discovery can occur at any time or place where, for instance, someone is listening, talking, or thinking about audio; however, new audio discoveries can be easily lost and forgotten. For example, a user may hear a song while shopping at the local mall and want to add that song to a playback queue in their home system (or some other system like a vehicle audio system). In another example, a user may listen to a radio program on their drive home from work and want to add that program to their home system. In another example, a user who has created a playlist on their system may want to share their playlist with a friend by adding the playlist to their friend's playback queue on their friend's system. In yet another example, a user has signed up for an online music service that automatically delivers new tracks to a playback queue in the user's system. Many other examples, similar and different from the above, are described herein and illustrate different types of discovery.

Certain embodiments are provided to prevent or reduce lost opportunities associated with new audio discoveries. For instance, an embodiment allows a user to remotely add audio content to a playback system, such as his or her home audio system. In another instance, an embodiment allows a user to discover audio remotely, capture it on a mobile device or some other network capable device, and subsequently provide the audio to his or her home audio system upon return. According to an embodiment, audio discovery can successfully occur even when the user is remote from a playback system, and yet be experienced on the playback system at a convenient time without getting lost and forgotten.

Certain embodiments are provided to offer a unique wired, wireless, or both wired and wireless audio solution that allows content, or pointers to content (which includes any kind of content identification or address), to be added to a playback queue from a remote location. A playback queue represents a queue of audio content, or pointers to audio content, to be played by a particular playback system and may contain, among other items, a mix of tracks or songs, albums, playlists, radio stations, programs, streaming content, or other audible items. Depending on the playback

US 9,674,587 B2

13

between wired/wireless networks for others. The zone player **606** in FIG. **6** is shown to be connected to both networks, for example. The connectivity to the network **612** is based on Ethernet and/or Wireless, while the connectivity to other devices **602**, **604** and **608** is based on Wireless and Ethernet if so desired.

It is understood, however, that in some embodiments each zone player **606**, **604**, **602** may access the Internet when retrieving media from the cloud (e.g., Internet) via the bridging device. For example, zone player **602** may contain a uniform resource locator (URL) that specifies an address to a particular audio track in the cloud. Using the URL, the zone player **602** may retrieve the audio track from the cloud, and ultimately play the audio out of one or more zone players.

VI. Example System Configuration

FIG. **7** shows a system including a plurality of networks including a cloud-based network and at least one local playback network. A local playback network includes a plurality of playback devices or players, though it is understood that the playback network may contain only one playback device. In certain embodiments, each player has an ability to retrieve its content for playback. Control and content retrieval can be distributed or centralized, for example. Input can include streaming content provider input, third party application input, mobile device input, user input, and/or other playback network input into the cloud for local distribution and playback.

As illustrated by the example system **700** of FIG. **7**, a plurality of content providers **720-750** can be connected to one or more local playback networks **760-770** via a cloud and/or other network **710**. Using the cloud **710**, a multimedia playback system **720** (e.g., SONOS™), a mobile device **730**, a third party application **740**, a content provider **750** and so on can provide multimedia content (requested or otherwise) to local playback networks **760**, **770**. Within each local playback network **760**, **770**, a controller **762**, **772** and a playback device **764**, **774** can be used to playback audio content.

VII. Remote Queue Manipulation

In an example system such as the one shown in FIG. **1**, **6** or **7**, where a SONOS system, for example, including one or more playback devices and one or more controllers, is connected together in a local area network (LAN), the ability to add audio content (or pointers to the content) to a playback queue of the system from a remote location not in the local area network may be valuable. Further, it may be valuable to store content, content identification, or pointers to content, on a mobile device when away from the network, and add the content or pointers to content to the playback queue upon return to the network.

As suggested previously, remote queue manipulation such as “remote add to queue” differs from conventional queue manipulation such as “Add to Queue” because, unlike the conventional “Add to Queue” which is initiated from within the system on the local area network, “remote add to queue” is initiated from a point outside the system beyond the local area network. In other words, audio content is discovered at a remote location and subsequently added to a playback queue of a system. The audio content may be added to the playback queue remotely or locally depending on the con-

14

figuration. Illustrative examples of remote queue manipulation, as applied to different scenarios and different system devices are discussed below.

A. Playback Queue

In an example system, a playback queue may include, for each track or item, information about the item including, for example, the title, artist, genre, etc. The playback queue may also include the audio content, or it may include a uniform resource locator (URL) or some other content identification identifying where the content is located. The audio content may be located on a device in the local area network (including a device connected directly to the zone player itself) or it may reside in the “cloud” over the Internet. In the “cloud” includes access to computer servers under the control of content providers like Internet radio stations, on-demand services, and so on. As additional audio content is selected, the content may be added to the playback queue such that the content may be played following an order (e.g., sequentially or in random order). In one example, there may be a playback queue for each zone or zone group (including a zone scene, which comprises dynamically grouping players responsive to a time or some other action), and a system may include multiple playback queues.

In the example system, a playback queue may be stored locally or remotely over the Internet. In one example embodiment, a playback queue is stored in memory on a device in the same local area network as the playback system. For example, a zone player such as the zone player shown in FIG. **2** and/or FIG. **4** may store a playback queue in memory **410**. In another example, a zone player in a zone group may store a playback queue in memory for the zone group. In yet another example, a controller such as the controller shown in FIG. **3** and/or FIG. **5** may store a playback queue in memory **510**. In another example embodiment, a playback queue may be stored remotely over the Internet in memory on a “cloud server” or network storage device. For example, the SONOS™ server **720** in FIG. **7** may be used to store one or more playback queues for SONOS™ systems **760** and **770**. In yet another example embodiment, the playback queue is stored in memory on a combination of devices including devices both local to the system and remote over the Internet. In each case, the player or group of players of a zone or zone group access the playback queue to determine the content for playback.

B. Queue Manipulation

In an example system, conventional queue manipulation may be done by a user using one or more controllers, such as the controller shown in FIG. **3** and/or FIG. **5**, communicating with the system either directly to a system component or through the local area network. Content may be played or added to the queue by the user selecting options on the controller such as “Play Now”, “Play Next”, “Add to Queue”, “Replace Queue”, and so on.

In addition to playing audio tracks from a playback queue, the example system may also conventionally play audio streams directly without adding them to the playback queue. For instance, this may be done by selecting an available stream (e.g., PANDORA™, RHAPSODY™, SPOTIFY™, etc., streaming radio station) and using the “Play Now” option on the controller. When an audio stream is played in this way, any audio stream currently being played may be stopped and discarded or otherwise not received and/or played by the system. However, the playback queue of audio tracks may not be affected. In this example system, zones and zone groups may also play streaming audio content.

Exhibit I

To: [REDACTED]
Cc: Mark Triplet
From: Chris Butts
Sent: Wed 10/26/2016 11:33:12 AM (UTC-04:00)
Subject: Presentation
[Google Deck 2016.10.25.pdf](#)

Hi John, Please see attached.

Chris Butts
Sonos Intellectual Property | m: [REDACTED] | [REDACTED]

The image shows a large, stylized portion of the Sonos logo. The letters are rendered in a bold, sans-serif font. The color is a gradient, starting with a dark red on the left and transitioning through orange to a bright yellow-orange on the right. The background is solid black.

Sonos & Google IP | Oct 2016
FRE 408

Agenda

- 1. Google Objectives**
- 2. Sonos Objectives**
- 3. Recap Overview of Sonos Patent Portfolio**
- 4. Use Sonos Taxonomy to Better Understand IP landscape**

Sonos Objectives

- **Help Google Understand how Sonos Patents cover Playing Audio from the Internet, Out-Loud, Throughout the Home**
- **Sonos Gains Mutual Understanding of IP Landscape To Enable Even Stronger Relationship With Google**

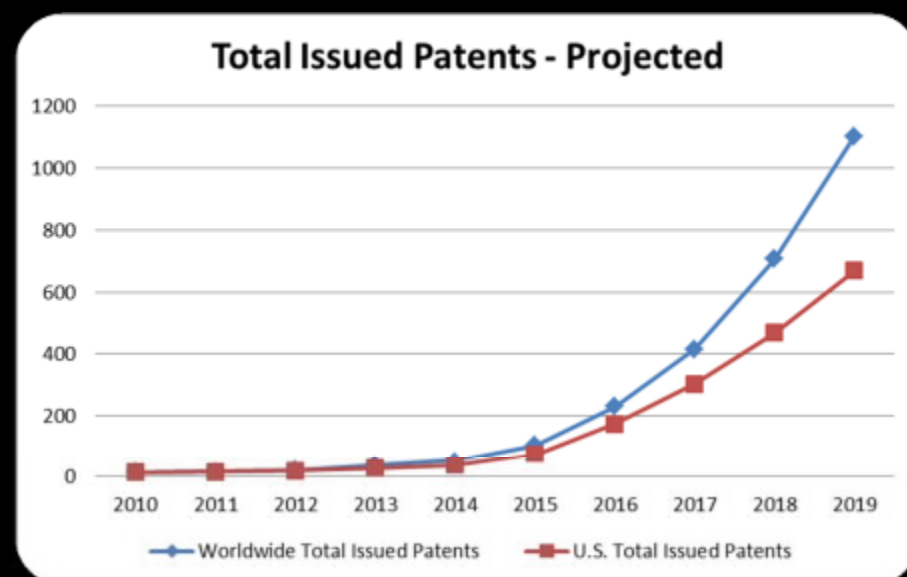
Recap Overview of Sonos Patent Portfolio

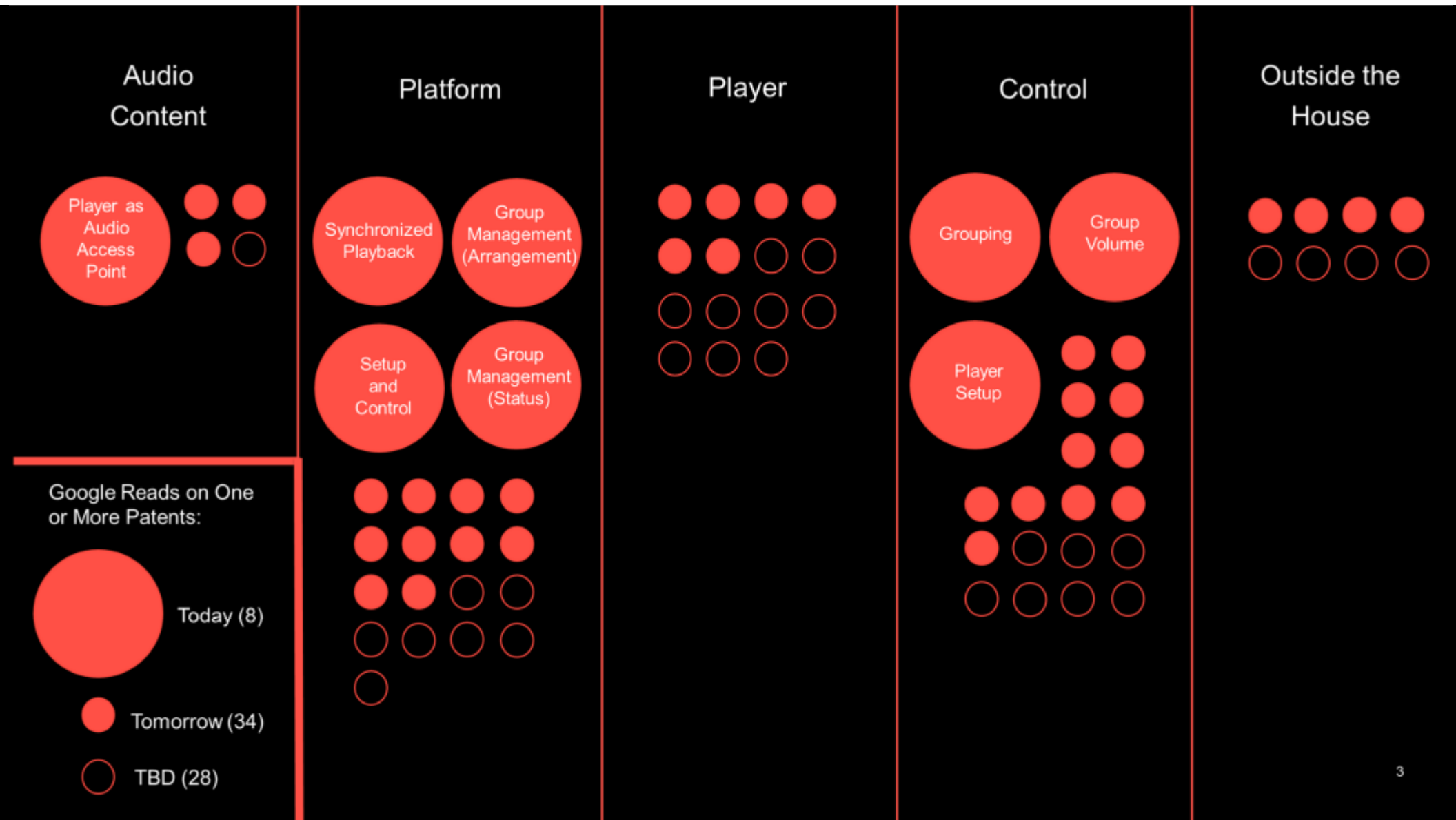
~230 US Patents Issued or Allowed

~600 US, ~1000 Worldwide, Assets

~3 New US Patents per week

**>50% of Patents practiced by Sonos
and/or Third Party**





Use Sonos Taxonomy to Better Understand IP landscape

Audio Content



(2 relevant patents, 1 disclosure)

Control



(7 relevant patents, 3 disclosures)

Platform



(11 relevant patents, 3 disclosures)

Player



(3 disclosures)

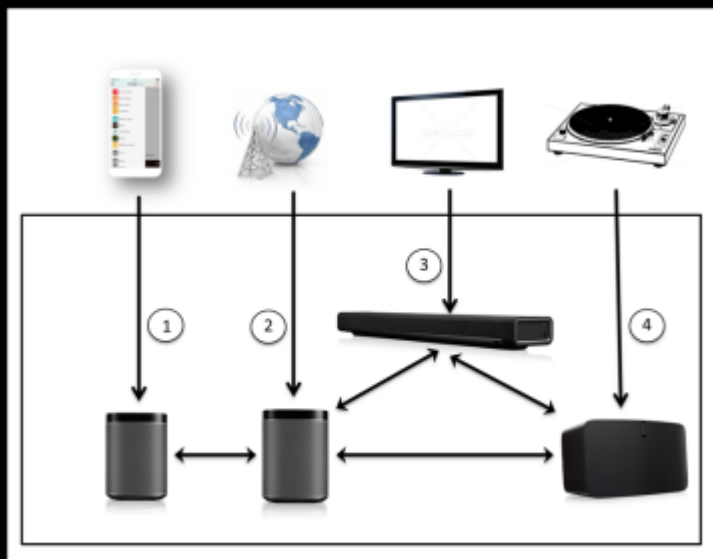
Outside the Home



(1 disclosure)

20 relevant patents, and a variety of additional especially relevant disclosures, identified

Audio Content – Getting Audio from a Source to a Sonos System



Patents Relevant To Google Today

U.S. 9,213,357

U.S. 9,189,011

(Audio Distribution)

Additional Disclosure

U.S. 8,938,312

(Line-In Switching)

- 1 Mobile to HH
- 2 Player to HH, LAN/WAN Connection
- 3 Player to HH, Video Audio Direct Connection
- 4 Player to HH, Music Direct Connection

Audio Content – Getting Audio from a Source to a Sonos System

US Pat. 9,213,357

Priority 2003

Issued 2015

20 claims (see the patent for complete claim language)

Example claim 1 involves:



- 1 Receiving an address identifying a location of audio available at a source outside of the LAN
- 2 Obtaining audio information using address
- 3 Send audio, playback timing, and device clock information to another player
- 4 Playing the audio by the players in synchrony

Audio Content – Getting Audio from a Source to a Sonos System

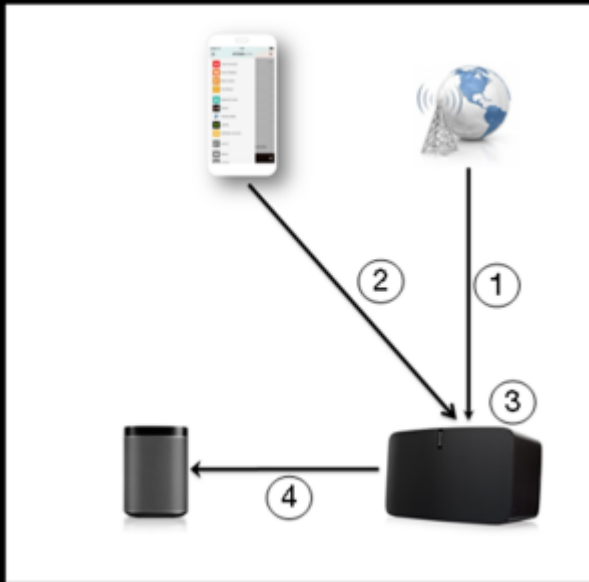
US Pat. 9,189,011

Priority 2003

Issued 2015

20 claims (see the patent for complete claim language)

Example claim 1 involves:



- 1 Receive audio information
- 2 Receive control input
- 3 Configure player to transmit audio and device clock information to another player, generate frames where each frame includes some audio and playback timing information
- 4 Transmit the frames and device clock information to the other player

Audio Content – Getting Audio from a Source to a Sonos System

US Pat. 8,938,312 *[ADDITIONAL DISCLOSURE]*

Priority 2011

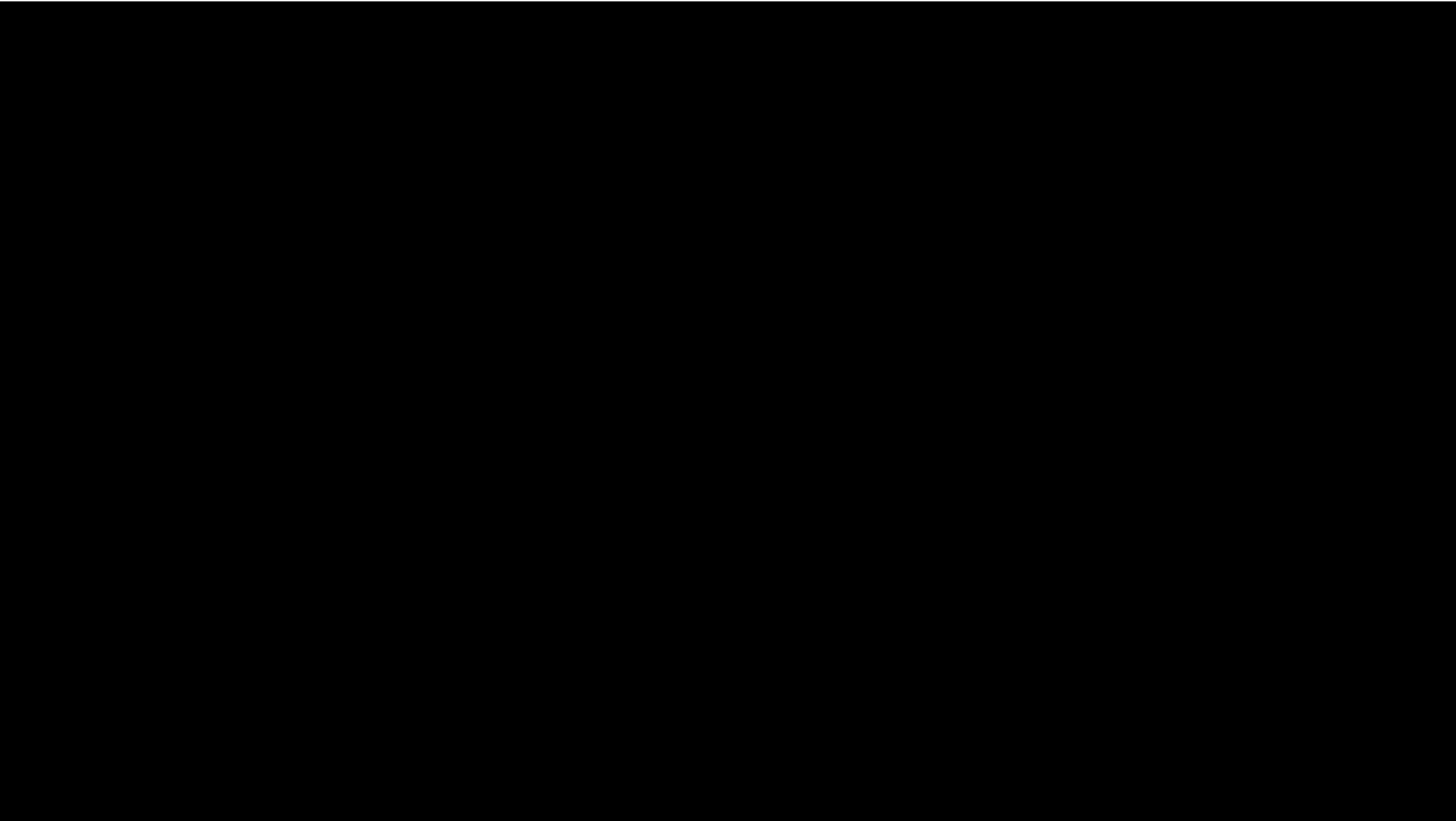
Issued 2015

20 claims (see the patent for complete claim language)

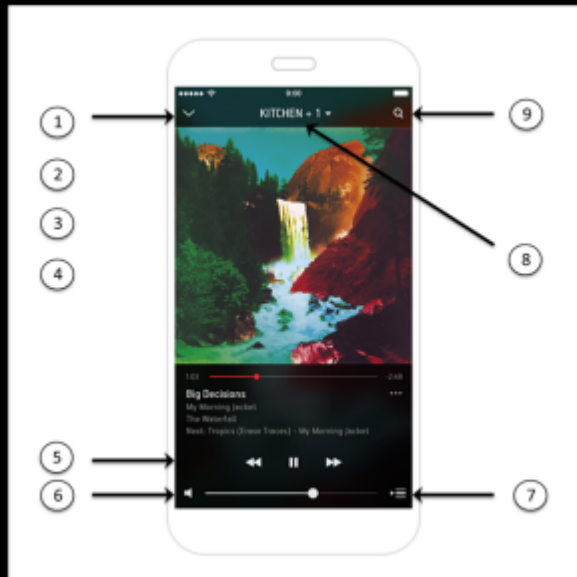
Example claim 1 involves:



- 1 Determine line-in audio signal present
- 2 Cease playback of prior audio signal
- 3 Receive instruction to stop playback of line-in audio
- 4 Arm player such that reception of a subsequent line-in audio is played



Control – Controls a Sonos system



- | | |
|-----------------------|------------|
| 1 Setup | 6 Volume |
| 2 Household Dashboard | 7 Queue |
| 3 Discover Content | 8 Grouping |
| 4 Social | 9 Find |
| 5 Playback | |

Patents Relevant To Google Today

U.S. 9,164,532	U.S. 9,218,017	(Group Formation)
U.S. 8,588,949	U.S. 7,571,014	(Group Volume Control)
U.S. 9,344,206	U.S. 8,843,228	(Grouping with Zone Scenes)
U.S. 8,930,005		(Setup Using Inaudible Tones)

Additional Disclosure

U.S. 14/520,566*	(Playback Transfer)
U.S. 8,326,951	(Household Setup)
U.S. 13/338,724	(Auto Content Selection for Zone)

*Relevant Allowed Claims

Control – Controls a Sonos system

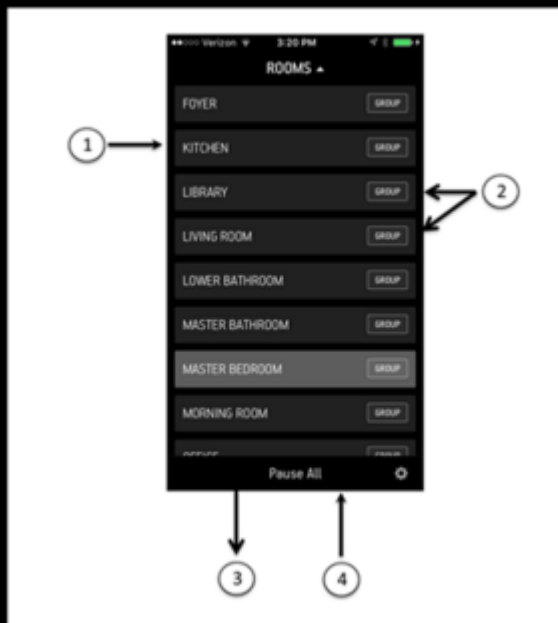
US Pat. 9,164,532

Priority 2003

Issued 2015

34 Claims (see the patent for complete claim language)

Example claim 1 involves:



- 1 Identify and display zones on a screen
- 2 Receive a command to form a zone group
- 3 Configure the zone group where a player of the group transmits audio, playback timing, and device clock information to the other players in the group
- 4 Receive status information from one of the players in the group

Control – Controls a Sonos system

US Pat. 8,588,949

Priority 2004

Issued 2013, Reexam Certificate 2015

20 Claims (see the patent for complete claim language)

Example claim 1 involves:



- 1 Display UI for player group, and receive input to facilitate formation of the player group
- 2 Receive input to adjust volume for one of the players that causes the player to adjust its volume
- 3 Receive input to adjust volume associated with player group that causes the players to adjust their volumes

Control – Controls a Sonos system

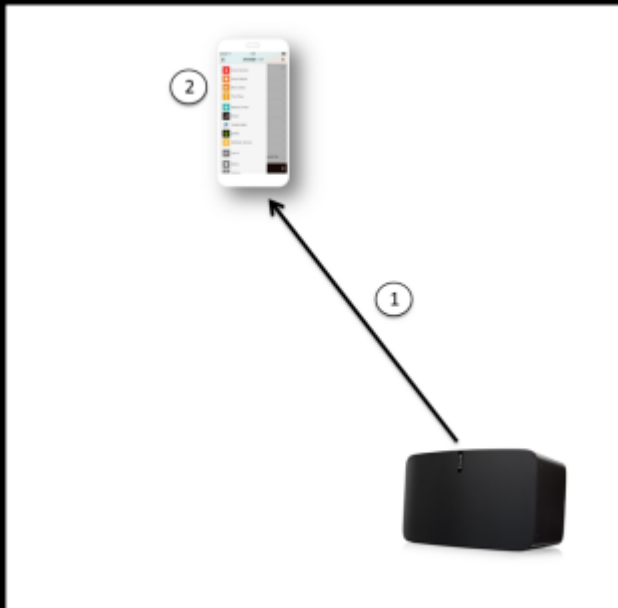
US Pat. 9,344,206

Priority 2007

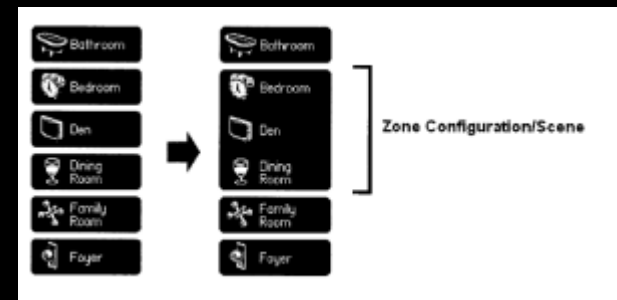
Issued 2016

20 Claims (see the patent for complete claim language)

Example claim 1 involves:



- 1 Receiving, from a playback device, a grouping configuration including a zone scene stored by the playback device, where the controller configured the stored grouping configuration
- 2 Display a selectable indication of the grouping configuration, where the selectable indication is selectable to cause the zone scene to be invoked



Control – Controls a Sonos system

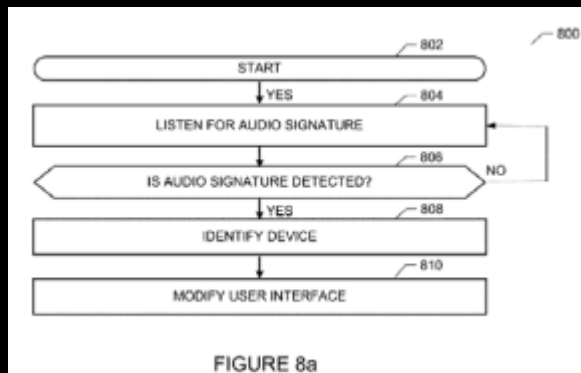
US Pat. 8,930,005

Priority 2012

Issued 2015

20 Claims (see the patent for complete claim language)

Example claim 1 involves:



- 1 Detecting a playback device based on an acoustic signature
- 2 In response to detecting the acoustic signature, modifying a user interface

Control – Controls a Sonos system

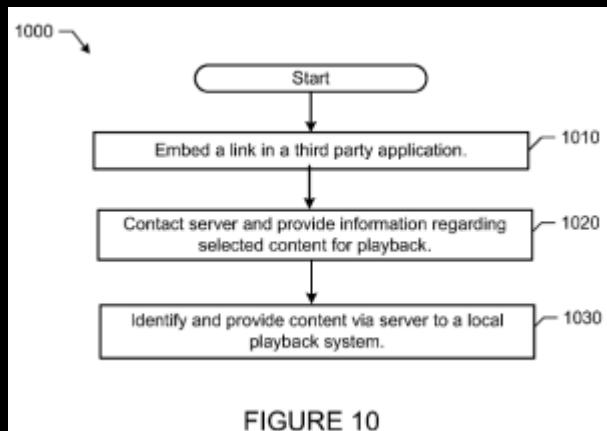
US App. 14/520,566* [ADDITIONAL DISCLOSURE]

Priority 2011

Will Issue 2016

20 Claims

Total of 5 pending applications either allowed or in late stage of prosecution generally involving:



- 1 Displaying controls for an playing back content on a control device
- 2 Identifying playback device on a LAN
- 3 Receiving an input to transfer playback to the playback device
- 4 Transfer playback to the playback device and stop playback on the control device

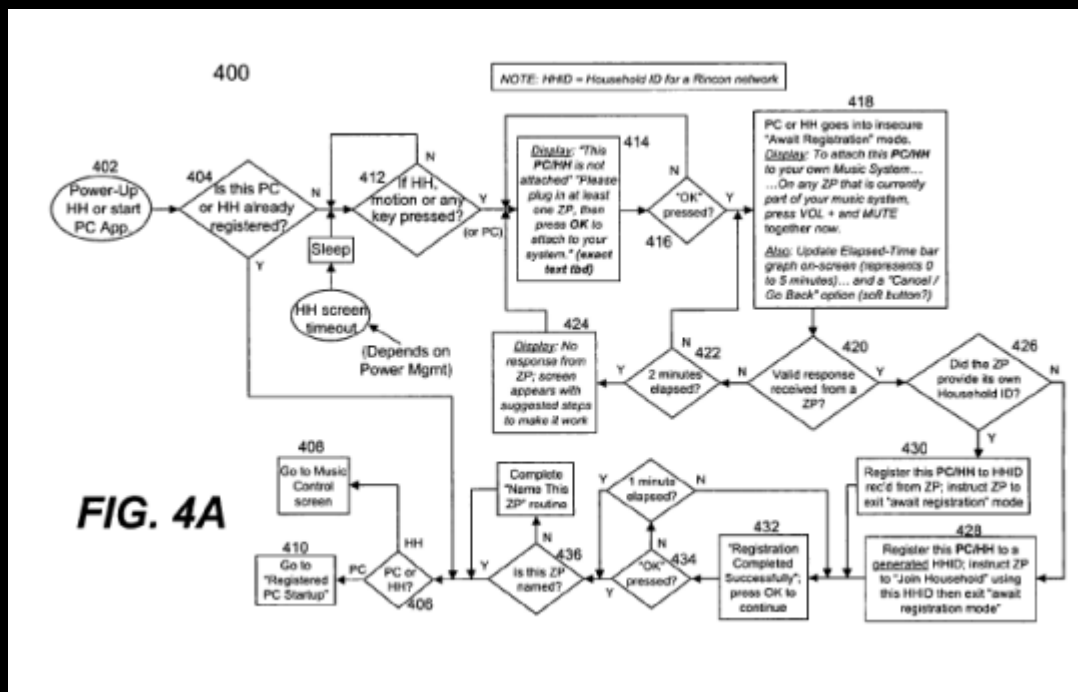
Control – Controls a Sonos system

U.S. 8,326,951 [ADDITIONAL DISCLOSURE]

Priority 2005

8 family members issued or in prosecution

Example disclosed subject matter involves setup of multimedia players:



(57)

ABSTRACT

Techniques for automatically configuring necessary parameters of a device to be coupled to a network with minimum human intervention are disclosed. In one embodiment, a wired and/or wireless Ad-hoc network is established to facilitate communications among a group of devices. When a new device is added to the network, a rudimentary communication path is initially established between one of the devices in the network and the new device such that necessary parameters (e.g., SSID, WEP security, channel frequency) can be exchanged for the new device to function properly in the network. To ensure the parameters are exchanged in a secure fashion, an additional public security procedure can be used between the two devices.

Control – Controls a Sonos system

U.S. 13/338,724 [ADDITIONAL DISCLOSURE]

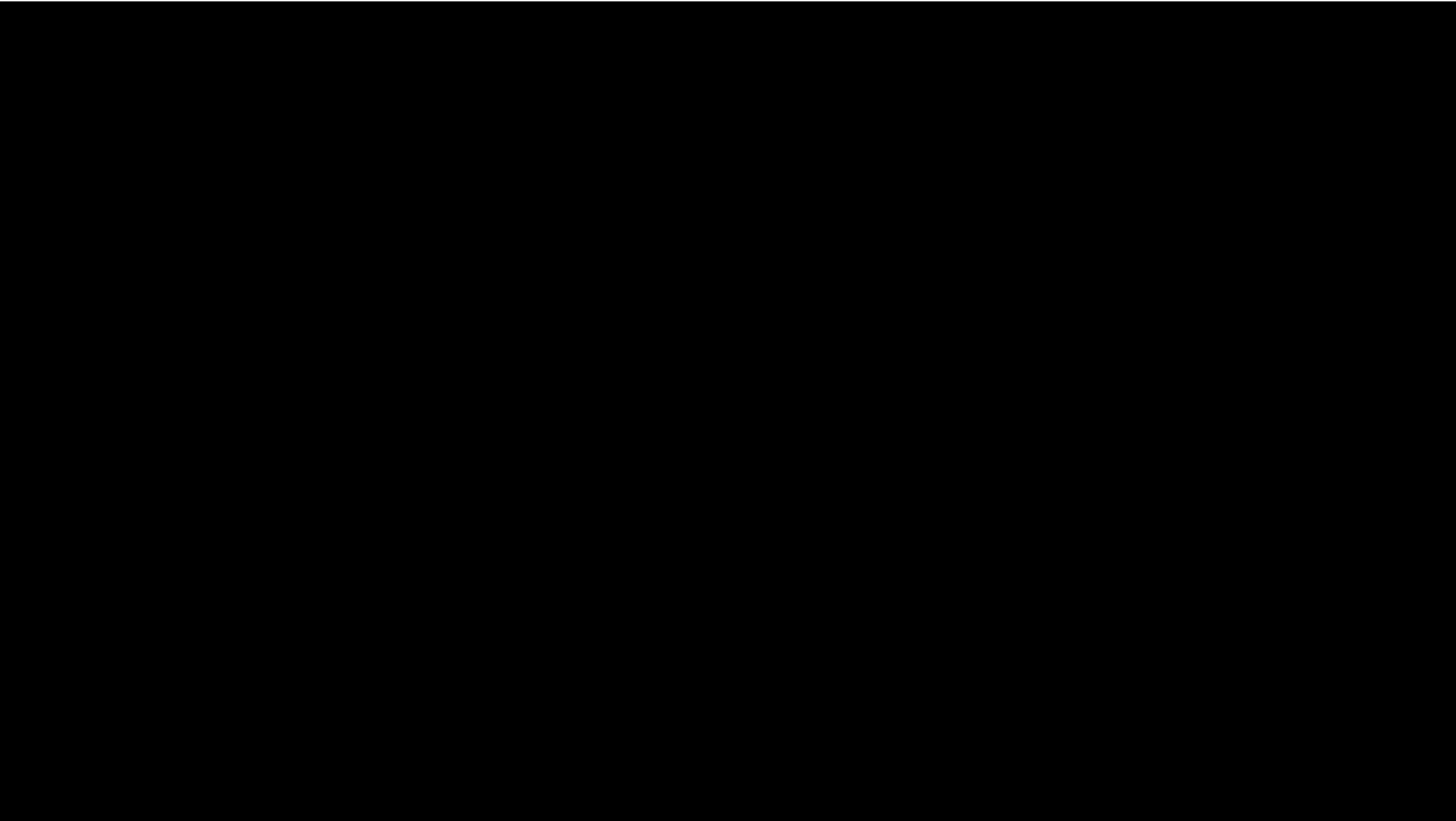
Priority 2011

3 family members in prosecution

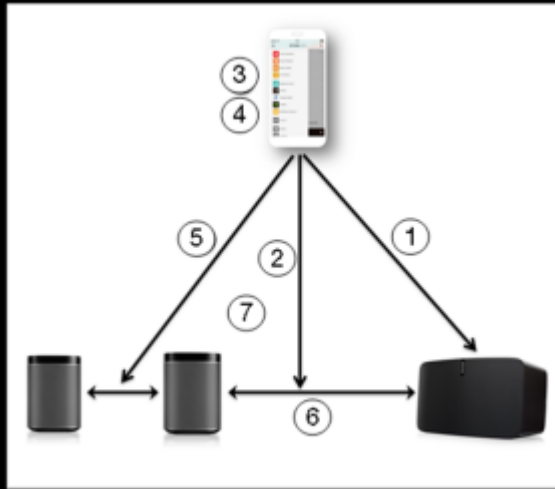
Example disclosed subject matter involves automatically selecting content for player zones:

[0012] Certain embodiments disclosed herein enable the selection of particular audio sources or tracks such as, for example, specific songs, playlists, artists, albums and/or genres. Music listeners have a variety of listening habits that depend on many conditions (e.g., playback conditions) and music properties. A playback condition may be any condition, state, attribute, characteristic and/or other situation or metric related to the playing of an audio track. The playback conditions may include time related conditions, location related conditions, and/or listener or user related conditions. A music property may include a tempo, a rhythm, a genre, an artist and/or a tagging to any of the conditions disclosed herein.

[0014] A location related playback condition may include, for example, a geographic location, a particular zone in a house or other building, a zone group, a zone room, a particular zone player in a room, a particular room, an outdoor location, an indoor location, a presence of a vehicle and/or any other location. Music listeners may listen to different tracks of music in different locations. A music listener may want to hear a particular set of songs if located, for example, poolside and a different set of songs if located, for example, in a child's nursery.



Platform – What Makes Sonos Players and Controllers Work Together



- ① Queue Management
- ② Group Management
- ③ Setup
- ④ Permission
- ⑤ Bonded Zone
- ⑥ Synchronization
- ⑦ Networking

Patents Relevant To Google Today

U.S. 9,182,777 U.S. 9,170,600 (Group Maintenance)

U.S. 9,213,356 U.S. 9,207,905

U.S. 9,195,258

U.S. 9,348,824 (Group Identification)

U.S. 9,288,596 (Coordinator Selection)

U.S. 9,182,777 U.S. 9,288,596 (Synchronization)

U.S. 8,689,036 U.S. 9,348,354

Additional Disclosure

U.S. 14/521,682* (Fault Tolerance)

U.S. 13/904,949* (Silent Connect)

U.S. 9,219,959 U.S. 9,202,509 (Stereo Pair)

*Relevant Allowed Claims

Platform – What Makes Sonos Players and Controllers Work Together

US Pat. 9,182,777

Priority 2003

Issued 2015

35 Claims (see the patent for complete claim language)

Example claim 1 involves:



- 1 A player [E.G., GROUP COORDINATOR/LEADER] receives control information from a controller over a LAN
- 2 The player retrieves audio information
- 3 The player transmits clock time information to at least two zones
- 4 The player transmits audio information and playback timing information to the at least two zones

Platform – What Makes Sonos Players and Controllers Work Together

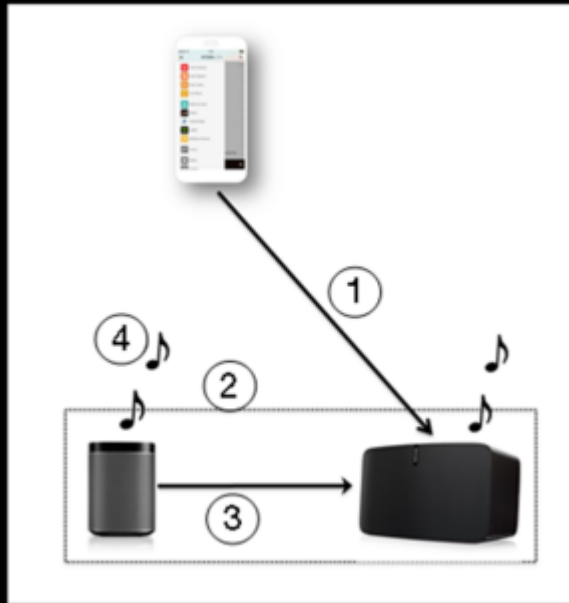
US Pat. 9,213,356

Priority 2003

Issued 2015

31 Claims (see the patent for complete claim language)

Example claim 1 involves:



- ① A player [E.G., GROUP MEMBER/FOLLOWER] receives control information over a LAN
- ② The player enters into a sync group with a second player
- ③ The player gets audio, playback timing, and device clock information from the second player
- ④ The player and second player play the audio in sync

Platform – What Makes Sonos Players and Controllers Work Together

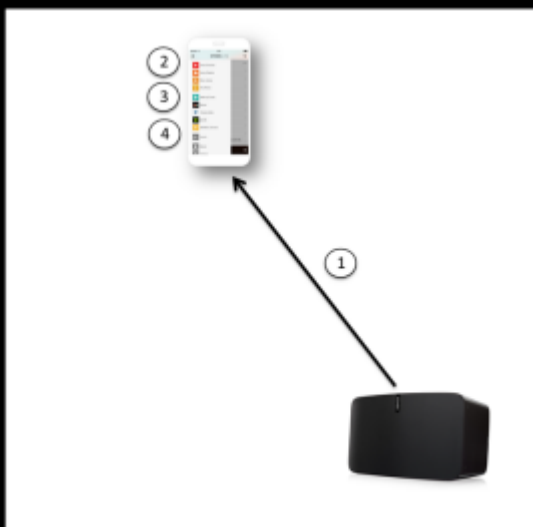
US Pat. 9,348,824

Priority 2014

Issued 2016

20 Claims (see the patent for complete claim language)

Example claim 1 involves:



- 1 Receiving and storing data indicating playback device is associated with group
- 2 Receiving input to display representations of groups
- 3 Identifying the playback device based on the group
- 4 Causing display of the group

Playback Device ID	Group ID	Group Coordinator	Display Name
Device1	Group1	Y	Living Room
Device2	Group2	Y	Dining Room
Device3	Group3	Y	Balcony
Device4	Group4	Y	Master Bedroom

FIGURE 6A

Platform – What Makes Sonos Players and Controllers Work Together

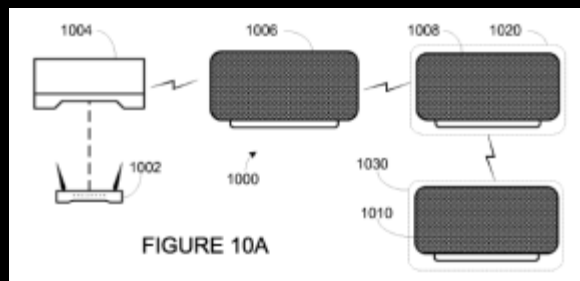
US Pat. 9,288,596

Priority 2013

Issued 2016

34 Claims (see the patent for complete claim language)

Example claim 1 involves:



- 1 Comparing wireless interface metrics of first and second playback devices
- 2 Based on comparison, designating first playback device group coordinator
- 3 Determining second playback device has higher wireless interference metric
- 4 Stopping first playback device from being group coordinator

Platform – What Makes Sonos Players and Controllers Work Together

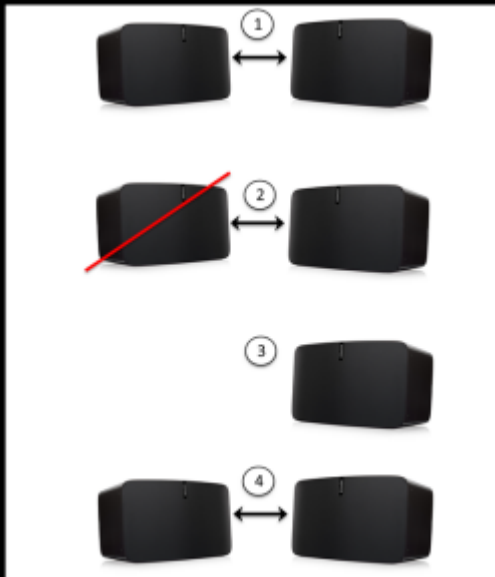
US App. 14/521,682* [ADDITIONAL DISCLOSURE]

Priority 2012

Will Issue 2016

22 Claims (see the allowed claims for complete claim language)

Example claim 1 involves:



- 1 Storing indication of playback responsibility
- 2 Detecting that playback device is disconnected
- 3 Detecting that playback device has reconnected
- 4 Directing the playback device to render audio content according to the playback responsibility

Platform – What Makes Sonos Players and Controllers Work Together

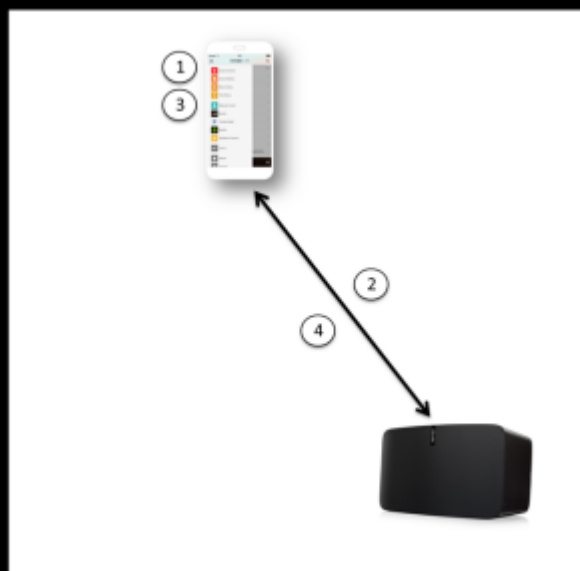
US App. 13/904,949* *[ADDITIONAL DISCLOSURE]*

Priority 2013

Will Issue 2016

23 Claims (see the allowed claims for complete claim language)

Example claim 1 involves:



- 1 Determining that the mobile device was in a first connected state with playback device
- 2 Receiving from the playback device media items in playback queue
- 3 Displaying an indication of media items
- 4 Establishing second connected state with playback device

Platform – What Makes Sonos Players and Controllers Work Together

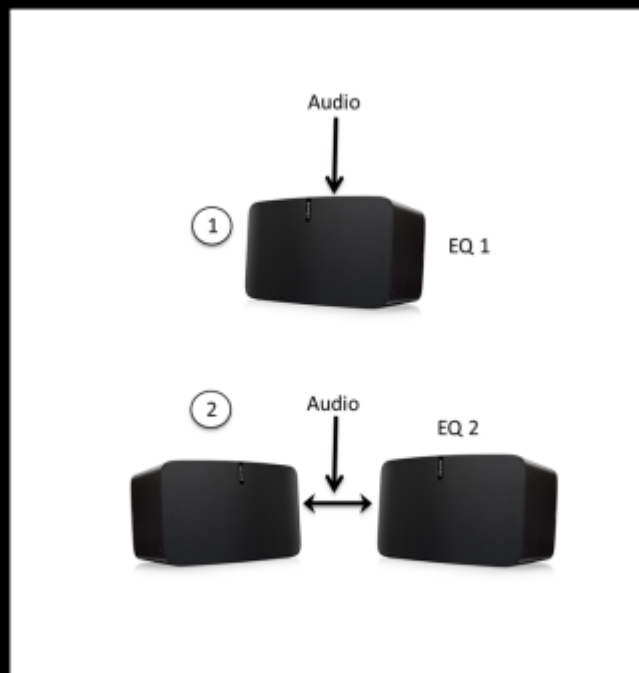
US Pat. 9,219,959 *[ADDITIONAL DISCLOSURE]*

Priority 2011

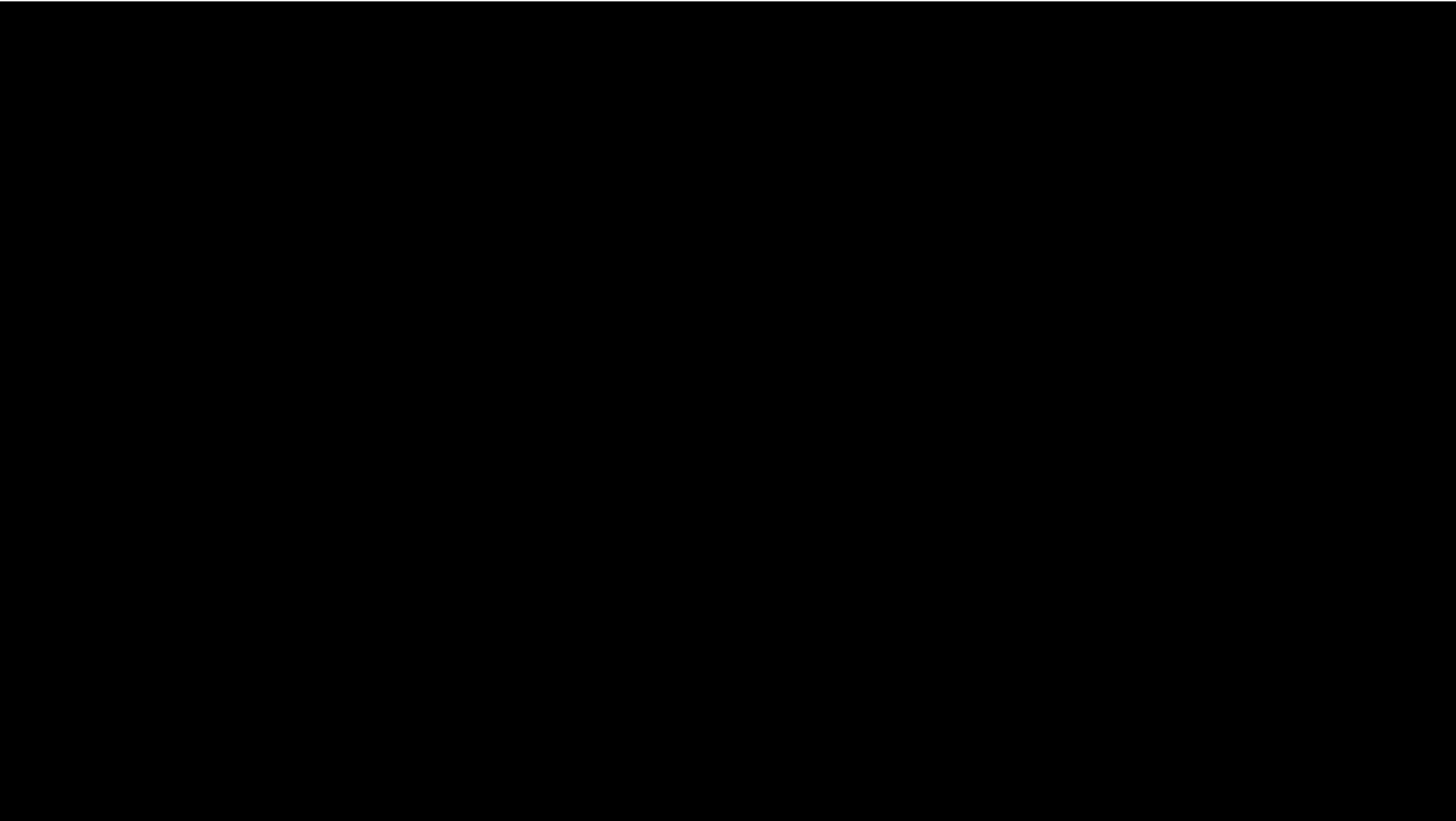
Issued 2015

22 Claims (see the patent for complete claim language)

Example claim 1 involves:



- 1 Player is configured for a type of pairing, performing EQ 1 prior to outputting audio
- 2 The player is configured for a different type of pairing, performing a EQ 2 prior to outputting audio



Player – What's in a Sonos Player



- 1 Power Supply
- 2 Amplifier
- 3 Playback
- 4 Processing
- 5 Queue Management
- 6 Transceiver
- 7 Acoustics
- 8 Input/Output

Patents Relevant To Google Today

NA

Additional Disclosure

U.S. 9,252,721	U.S. 9,246,442	(Power Save)
U.S. 9,225,307		(Proximity Detection)
U.S. 8,995,240		(Player Base)

Player – What's in a Sonos Player

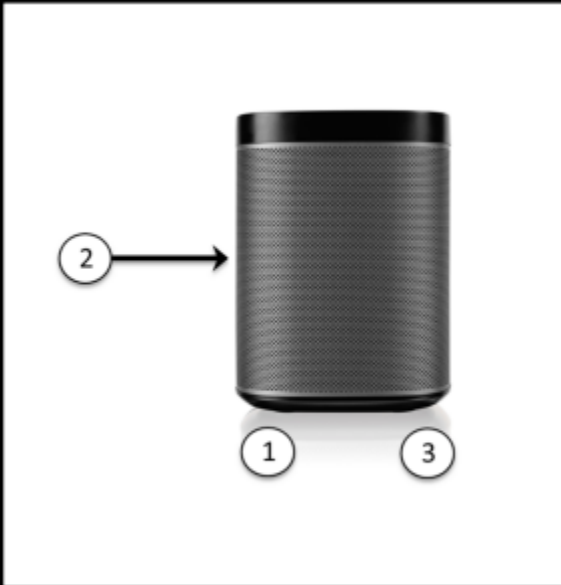
US Pat. 9,252,721 *[ADDITIONAL DISCLOSURE]*

Priority 2004

Issued 2016

20 Claims (see the patent for complete claim language)

Example claim 1 involves:



- 1 Playback device operates in first power mode
- 2 Playback device receives certain type of packet (e.g., from audio source)
- 3 Determine that a defined time has passed since receiving the type of packet
- 4 Playback device transitions to second power mode

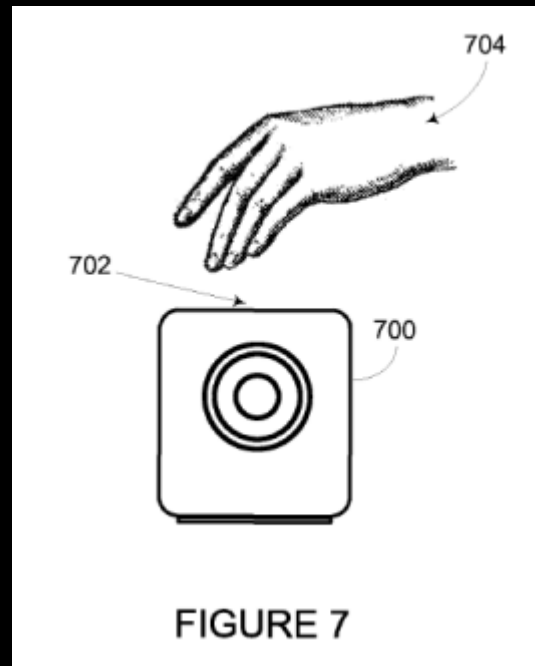
Player – What's in a Sonos Player

U.S. 9,225,307 [ADDITIONAL DISCLOSURE]

Priority 2012

1 patent, 2 pending applications in family

Example disclosed subject matter involves activating interface on player based on proximity:



[0047] Proximity sensor 422 is a sensor able to detect the presence of nearby object, such as a human hand, without any physical contact. In an embodiment, the proximity sensor 422 emits an electromagnetic field or a beam of electromagnetic radiation and examines the return signal or field for changes. In an embodiment, proximity sensor 422 may be used to light up or activate a user interface on zone player 400, such as capacitive buttons positioned on an exterior surface of the zone player 400. In an embodiment, the proximity sensor 422 may be used according to the embodiments described herein to modify audio output. In another embodiment, the proximity sensor 422 may be used to do multiple functions such as activate a UI on the playback device

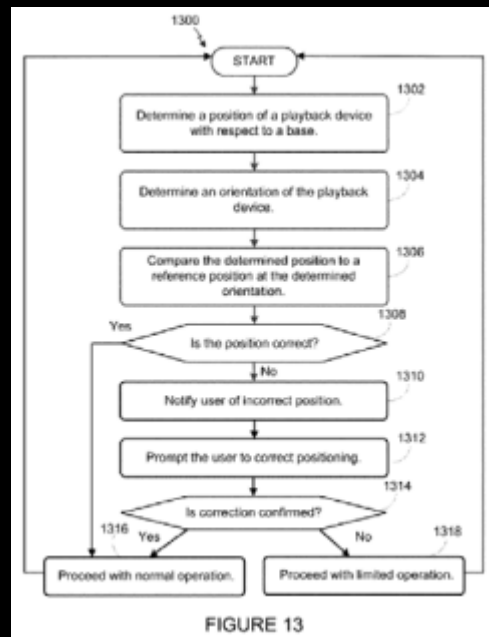
Player – What's in a Sonos Player

U.S. 8,995,240 [ADDITIONAL DISCLOSURE]

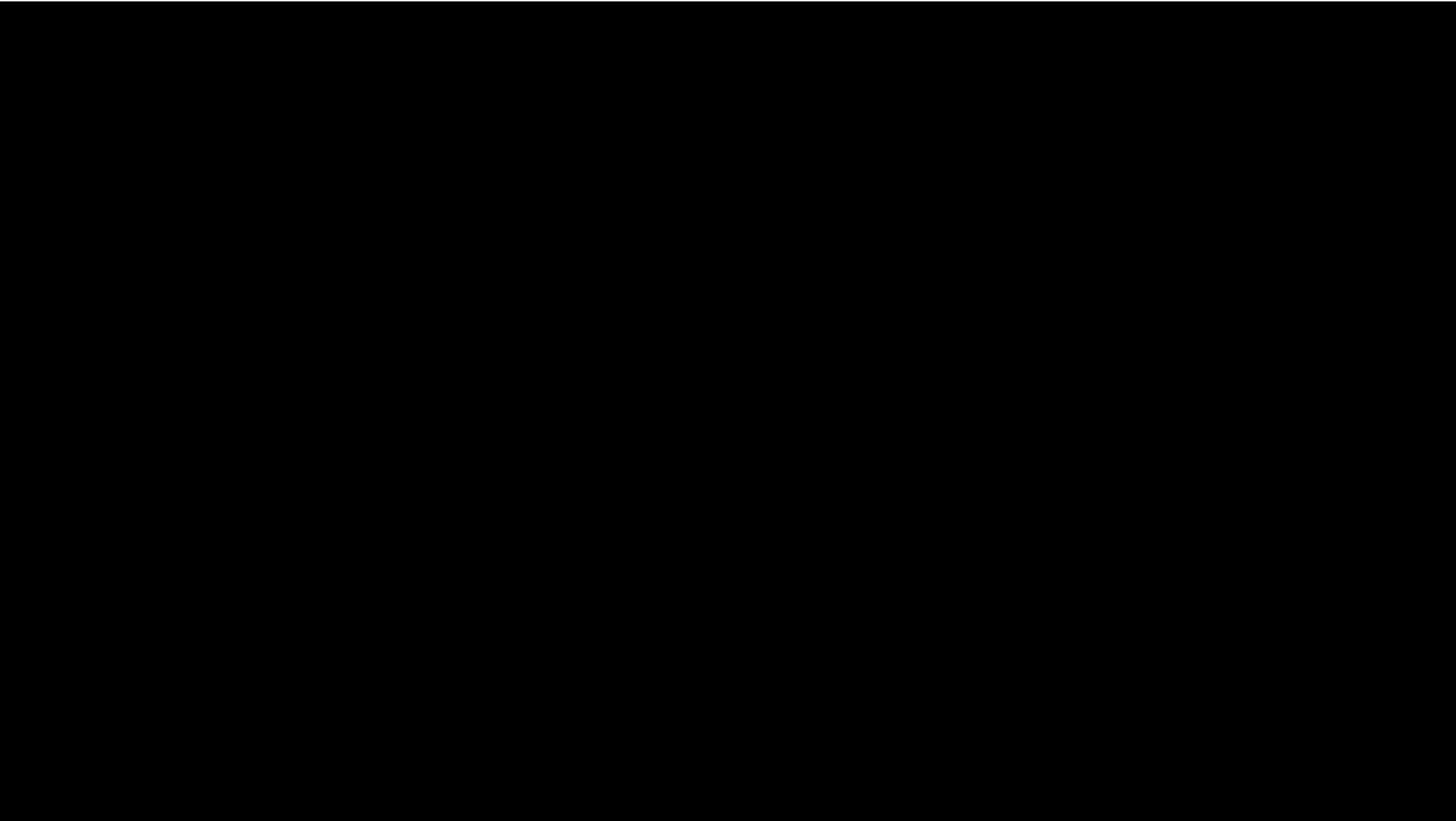
Priority 2014

3 patents, 1 pending application in family

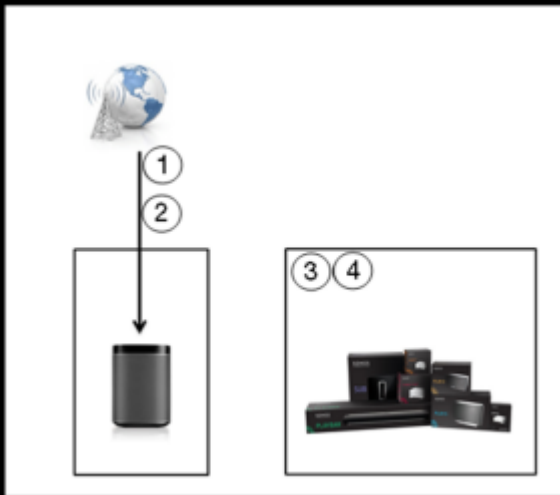
Example disclosed subject matter involves preventing/adjusting playback when player base not attached correctly:



[22] Some embodiments described herein relate to a playback device capable of positioning and playback in a variety of orientations and/or positions. For example, the playback device shapes sound and/or adjusts one or more playback settings responsive to its orientation and/or position with respect to another object, a surface, etc. According to some examples, such embodiments may be implemented in an environment and system for which an ability to change an orientation of a playback device, position the playback device with respect to a base, and affect one or more playback settings of the playback device based on that orientation and/or position is desired.



Outside the Home – Innovations that Touch a Sonos User



- 1 Services
- 2 Data Analysis
- 3 Packaging
- 4 Marketing

Patents Relevant To Google Today

Additional Disclosure

U.S. 9,363,255

(Cloud Queue)

Outside the Home – Innovations that Touch a Sonos User

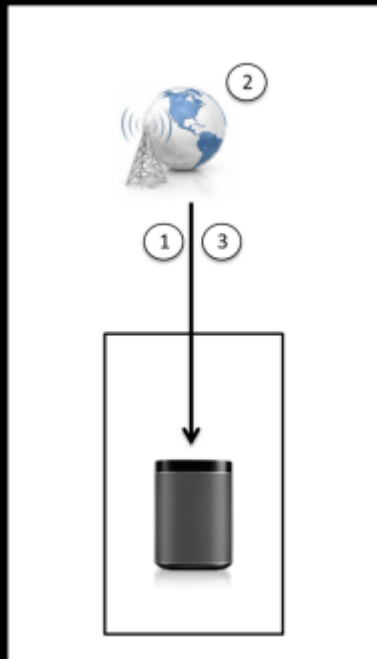
US Pat. 9,363,255 [ADDITIONAL DISCLOSURE]

Priority 2014

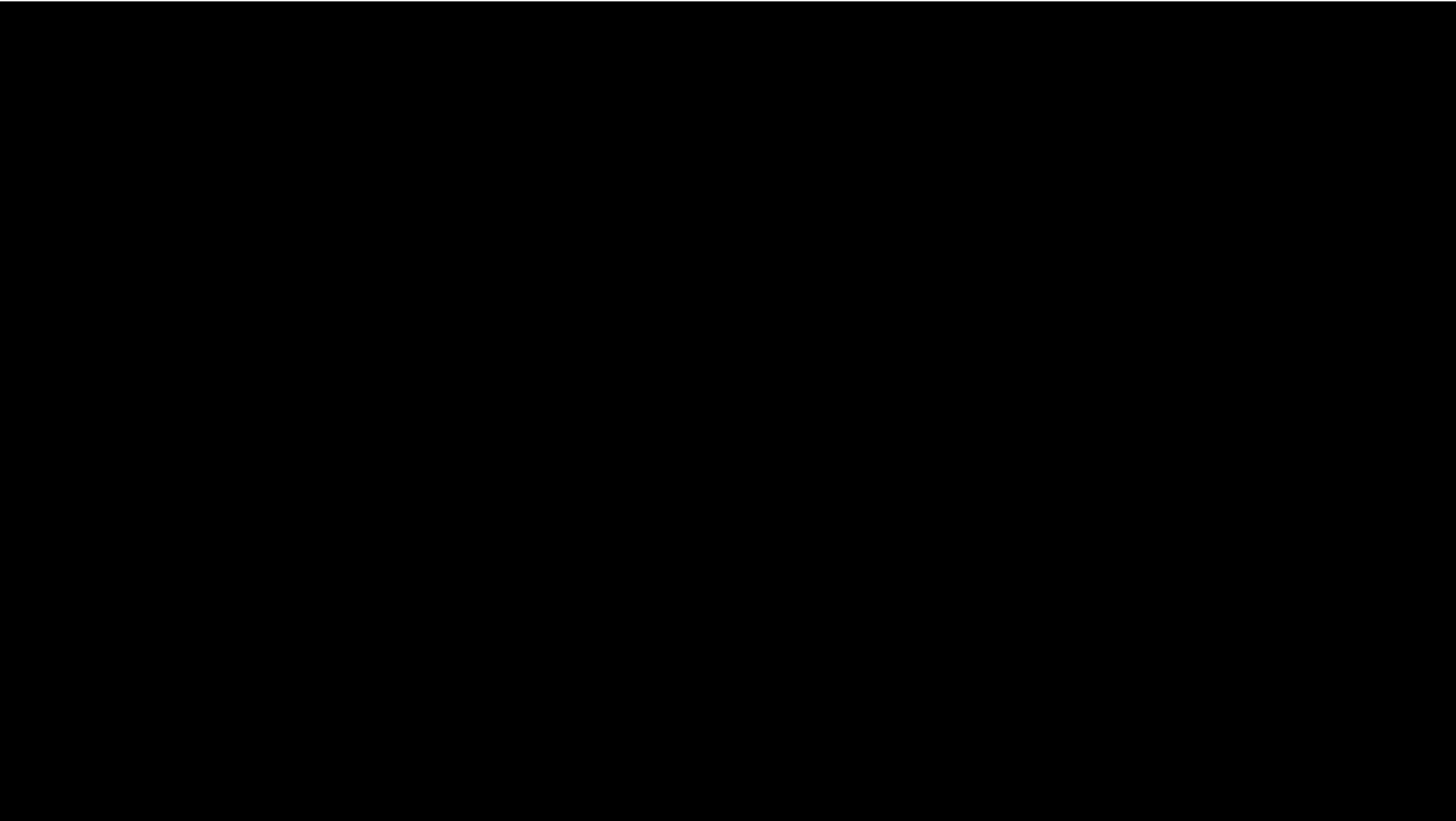
Issued 2016

2 patents, 2 allowed applications, and 7 pending applications in family:

Example claim 1 involves:



- 1 Receiving request for playhead pointer in cloud queue
- 2 Identifying position of playhead pointer
- 3 Sending an indication of the playhead pointer



Discussion & Next Steps

Exhibit J

10:10:41

1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE WESTERN DISTRICT OF TEXAS
3 WACO DIVISION
4 SONOS, INC.) (
5 PLAINTIFF,) (CIVIL ACTION NO.
6) (6:20-CV-881
7 VS.) (WACO, TEXAS
8) (
9 GOOGLE LLC,) (JULY 23, 2021
10 DEFENDANT.) (10:31 A.M.

11

12

SEALED MOTION HEARING

13

BEFORE THE HONORABLE JUDGE ADAM D ALBRIGHT

14

UNITED STATES DISTRICT JUDGE

15

16 FOR THE PLAINTIFF: Mr. Mark D. Siegmund
17 Law Firm of Walt Fair, PLLC
1508 North Valley Mills Drive
Waco, Texas 76710
18
19 Mr. Cole B. Richter
Lee Sullivan Shea & Smith, LLP
656 W. Randolph Street, Floor 5W
20 Chicago, Illinois 60661
21 COURT REPORTER: Ms. Shelly Holmes, CSR, TCRR
Certified Shorthand Reporter
22 2593 Myrtle Road
Diana, Texas 75640
23 (903) 720-6009
shellyholmes@hotmail.com
24

25 (Proceedings recorded by mechanical stenography, transcript
produced on a CAT system.)

1 FOR THE PLAINTIFF: Ms. Kristina D. McKenna
Orrick Herrington & Sutcliffe LLP
2 222 Berkeley Street, Suite 2000
Boston, Massachusetts 02116

3
4 FOR THE DEFENDANT: Mr. Stephen Burbank
Scott Douglas & McConnico
303 Colorado Street
5 Suite 2400
Austin, Texas 78701

6
7 Ms. Melissa J. Baily
Quinn Emanuel Urquhart & Sullivan LLP
50 California Street
8 22nd Floor
San Francisco, California 94105

9
10 Ms. Lindsay M. Cooper
Quinn Emanuel & Sullivan LLP
50 California Street
11 22nd Floor
San Francisco, California 94105

12 Also Present: Ms. Suzanne Kim, in-house counsel for
13 Google
Mr. Patrick Weston, in-house counsel for
14 Google

15

16

17

18

19

20

21

22

23

24

25

11:01:12 1 speakers.

11:01:13 2 And that Google owned technology, you know,
11:01:16 3 related to that implementation. This dispute does not
11:01:24 4 relate to that.

11:01:24 5 And, in fact, this is a patent infringement
11:01:27 6 dispute. I'm not even sure how it would work to have
11:01:30 7 accused Sonos's own players of infringing someone else's
11:01:30 8 patent.

11:01:33 9 This dispute is a patent infringement dispute over
11:01:35 10 what Google did outside of the agreement and outside of the
11:01:38 11 collaboration.

11:01:39 12 We -- we don't have a dispute over the agreement,
11:01:42 13 Your Honor. There's no breach of contract, for instance.
11:01:48 14 This is a patent infringement dispute.

11:01:50 15 So I think that question actually simplifies the
11:01:53 16 whole analysis for Your Honor, is just to determine is this
11:01:56 17 a dispute that relates to the agreement, or is this a -- is
11:02:00 18 this a dispute that's outside of the agreement that needs
11:02:03 19 to resolve questions of what did a party say or omit during
11:02:07 20 its discussions?

11:02:08 21 What did Google -- when the collaboration was
11:02:11 22 finished and the product was released, what did Google then
11:02:14 23 do with its other products?

11:02:15 24 What -- did Google take the technology and -- and
11:02:17 25 bring it outside of the context of the collaboration and do

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

CERTIFICATION

I HEREBY CERTIFY that the foregoing is a true and correct transcript from the stenographic notes of the proceedings in the above-entitled matter to the best of my ability.

/s/ Shelly Holmes
SHELLY HOLMES, CSR, TCRR
CERTIFIED SHORTHAND REPORTER
State of Texas No.: 7804
Expiration Date: 10/31/2021

7/28/2021
Date